Humanitarian Assistance Sector Assessment: Humanitarian Assistance and Disaster Relief Needs in the East Asia Region

Prepared for

United States Agency for International Development
Regional Support Mission for East Asia

Bangkok

DRAFT

OFDA Library
1252 New State
Washington, DC 20523

by

Gary Shook, Sc.D.
Asian Disaster Preparedness Center
Asian Institute of Technology
Bangkok, Thailand

December 1994

A

TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS

ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Center (at the Asian Inst of Technology, Bangkok)
AFRIMS	(US Army) Armed Forces Research Institute of Medical Science
AIDAB	Australian International Development Assistance Bureau
AIDRECEP	(Vietnamese) Aid Reception Committee
AIT	Asian Institute of Technology (Bangkok)
ASEAN	Association of Southeast Asian Nations
BAP	(Vietnamese) Conservation Training and Biodiversity Action Plan
BDMC	Burmese Disaster Management Committee
BRC	Burmese Red Cross
BTU	British Thermal Unit
CAR	Central Asian Republics
CCFSC	(Vietnamese) Central Committee for Flood and Storm Control
CDRI	Cambodia Development Resource Institute
CNCIDNDR	Chinese National Committee for the Intl Decade for Natural Disaster Reduction
CRI	Collaborating Resource Institution
CSFCC	(Vietnamese) Central Committee of Storm and Flood Control
DESD	United Nations Department of Economic and Social Development
DHA	United Nations Department of Humanitarian Affairs
DDMFC	(Vietnamese) Department of Dike Management and Flood Control
DM	Disaster Management
DMT	Disaster Management Team
DMTP	(UNDP/DHA) Disaster Management Training Program
DTCP	United Nations Development Training and Communications Planning
DTEC	(Thai) Department of Technical and Economic Cooperation
EEC	European Economic Community
ESCAP	(UN) Economic and Social Development Commission for Asia and the Pacific
FAO	(United Nations) Food and Agriculture Organization
FY	Fiscal Year
GNP	Gross National Product
GIS	Geographic Information System
GRID	Global Resource Information Database
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
ICORC	The International Committee on the Reconstruction of Cambodia
ICRC	International Committee of the Red Cross
IDNDR	International Decade for Natural Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IGO	International Government Organization
ILO	International Labor Organization
INGO	International Nongovernmental Organization
Lao PDR	Lao People's Democratic Republic
LDMC	Lao Disaster Management Committee

LMSW	Lao Ministry of Social Welfare
LRC	Lao Red Cross
MAFIC	(Lao) Ministry of Agriculture, Forestry, Irrigation and Cooperatives
MIS	Management Information System
MSWRS	(Burmese) Ministry of Social Welfare, Relief and Resettlement
NCDC	(Thai) National Civil Defense Committee
NCDM	(Cambodian) National Committee for Disaster Management
NDRP	(Chinese) National Disaster Reduction Plan
NGO	Non-Governmental Organization
OFDA	(USAID) Office of Foreign Disaster Assistance
PID	(USAID) Project Implementation Document
PMP	Prevention, Mitigation and Preparedness
PRC	Peoples' Republic of China
PVO	Private Voluntary Organization
RCI	Regional Collaborating Institution
RGC	Royal Government of Cambodia
RHUDO	USAID Regional Housing and Urban Development Office
RSM/EA	USAID Regional Support Mission for East Asia
RTG	Royal Thai Government
SLORC	(Burmese) State Law and Order Restoration Council
SMICD	(Mongolian) Science, Monitoring and International Cooperation Department
SPEC	(Mongolian) State Permanent Emergency Commission
UK	United Kingdom
UN	United Nations
UNCHS	United Nations Center for Human Settlements
UNCIDNDR	UN Committee for the International Decade for Natural Disaster Reduction
UNDP	United Nations Development Program
UNDRO	United Nations Disaster Relief Organization
UNFPA	United Nations Population Fund
UNEP	United Nations Environmental Program
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VNCIDNDR	Vietnamese National Committee for the International Decade for Natural Disaster Reduction
WB	World Bank
WFP	(United Nations) World Food Program
WHO	World Health Organization
WMO	World Meteorological Organization

GLOSSARY OF TERMS

Accident	An event occurring by chance or unintentionally
Assessment	An evaluation or process of analysis
Disaster	An event causing death, injury and damage to a community and exceeding that community's immediate capacity to respond
Emergency	A life-threatening or damaging event, resulting from a hazard impinging on vulnerabilities, that requires immediate attention
Hazard	A threatening event or occurrence, natural or man-made, that has the potential for causing injury or death to humans or damage to property and the environment
Management	The process of planning and coordinating activities by controlling and leading
Mitigation	Activities taken before a disaster that reduce the impact of that disaster, usually focussed on protecting vulnerable elements of society and the environment
Preparedness	Those activities necessary to prepare for the next disaster monitoring, early warning, training, public awareness
Prevention	Activities meant to provide permanent protection from disasters, usually focussed on controlling the hazard
Risk	The probability or chance of an event occurring, expected losses due to a disaster
Vulnerability	A set of prevailing conditions (*vulnerable elements*) composed of physical, socio-economic, political and environmental factors which increase a community's susceptibility to a disaster or which may adversely affect its ability to response to a hazardous event

Modified from DHA, 1992, *Internationally Agreed Glossary of Basic Terms Related to Disaster Management*, and Carter, N , 1991, *Disaster Managers Handbook*, Manila ADB

EXECUTIVE SUMMARY

Since the inception of USAID, humanitarian assistance has been an important part of the Agency's mission Through the Agency, the United States has had a long and generous history of providing assistance to victims of man-made and natural disasters In fact, all executive departments and agencies treat USAID as the focal point for interagency actions on international disaster assistance

USAID's Humanitarian Assistance Strategy is multi-faceted

- to reduce suffering and protect economic assets when disasters occur,
- to reduce the vulnerability of populations at risk, with a high priority for protecting development in progress through preparedness, mitigation and prevention and appropriate development policies,
- to facilitate a rapid return to normalcy and self-sufficiency in the aftermath of emergencies and disasters,
- to preserve the basic institutions of civil governance during crises and to support new democratic institutions during periods of national transition and, finally,
- to protect the health and food security of highly vulnerable groups who may be beyond the scope of current development assistance programs

USAID's Regional Support Mission for East Asia (RSM/EA) wishes to develop a five-year Strategic Plan to address issues in the areas of the environment, economic growth, health and population growth, democracy, and humanitarian assistance This report seeks to assist the RSM/EA in the development of the humanitarian assistance component of the plan The state of hazards and vulnerabilities are reviewed and the subjective risk of disasters is examined for the East Asia region and for the countries of Burma, Cambodia, China, Laos, Mongolia, Thailand and Vietnam The report describes current levels of humanitarian assistance and disaster reduction in the region, along with donor efforts to meet humanitarian assistance needs Finally, mechanisms and strategies to address and lessen those needs are addressed

Disasters, the product of a hazard impinging upon vulnerable populations, economic assets or sensitive environments, are events that overwhelm the immediate capacity of communities to respond They are possible in all societies and their prevention or reduction as well as the response to them, often requires external assistance Since the impact of a disaster is frequently related to a country's management of hazards or vulnerable elements, disasters often highlight the weaknesses of societies to deal with such events

There is an inextricable link between disasters and development Increased industrialization and urbanization with attendant resource depletion, all attributes of development, are increasing the

vulnerability of developing nations in the East Asia region to disasters of all forms Development, however, also offers an opportunity to reduce the impact of disasters and protect lives and property Sustainable development must include preparedness, mitigation and prevention strategies and promote rapid and adequate response in the face of an emergency in order to reduce the economic loss attendant with disasters

East Asia's major hazards are water related flood from high rainfall, typhoon and storm surge, and drought Damage from flood from all sources is increasing through several mechanisms, including a growing population of poor and landless who find habitation only in flood-prone areas, location of development and industrial zones in flood-prone areas, deforestation and resultant sedimentation that clog river and drainage channels, along with decreased sorptive ability of previously forested areas, deterioration of old flood mitigation structures and ineffective or poorly enforced prevention, mitigation and preparedness measures Drought is being exacerbated by deforestation, lost infiltrative capacity of soil, and microclimate changes associated with land-use practices

Earthquake and other seismic events represent the next severest hazards, with Burma, China and Mongolia being particularly vulnerable Tsunamis (waves generated by off-shore earthquakes) are also reported for China Landslides may be triggered by seismic events or by development activities, such as road construction or deforestation that destabilize natural slopes

Other natural hazards of the region include wind storms, often the result of typhoons or tropical storms that strike coastal areas Cold weather is a minor hazard in most East Asian countries of interest, except many regions of China and most of Mongolia, where shelter and energy requirements for heating are of great concern Major losses in human life, crop damage, and lost livestock occur annually in both countries to cold weather events

Concern is now increasing regarding the technological hazards of fire, explosion, structural collapse and hazardous chemical release These are the major hazards of countries in advanced stages of development such as Thailand Although still a very rural country, Burma' major hazard is fire Other human related hazards, such as air and water pollution and accumulation of solid and hazardous wastes, are all attendant with resource and energy use Floods, landslides and drought are now more often associated with land-use activities that destabilize natural systems rather than as purely natural events

With the exception of Thailand, East Asia's most dramatic increase in vulnerability is through population growth Development, in the form of economic assets such as new businesses and factories, infrastructure and lifelines, represents the second broad class of vulnerability now increasing disaster risk in the region

In spite of the major toll of disasters each year in the country, China enjoys the highest level of disaster management effectiveness of the seven countries of interest, followed by Thailand and Vietnam It is a lack of cooperation, coordination and effective enforcement in both countries that increase risk of disaster for those countries Mongolia has a basically good structure but

very inadequate resources to manage its disasters Cambodia, Laos, and Burma are rated lowest in their manageability of hazards and vulnerabilities

Along with the subjective risk assessments for each country, recommendations from individual countries, UN agencies, NGOs and donors, have resulted in identification of needs to enhance humanitarian assistance, reduce risk and strengthen disaster management in the seven countries of interest and in the East Asia region They are here listed in priority order, with a brief description of tasks required to meet the needs and an estimate of the degree of risk associated successfully providing the needed assistance

Burma's Humanitarian Assistance Needs

Priority Need 1 Enhance disaster coordination, community involvement and awareness by
a) enhancing coordination of the UN Disaster Management Team and the Burmese Disaster Management Committee,
b) improving needs assessment capabilities, and
c) expanding training at the local level to promote timely and effective responses

Priority Need 2 Improve response capacity by
a) improving fire fighting equipment, and
b) enhancing storm surge and typhoon warnings capacity

Priority Need 3 Encourage sustainable development and yield by
a) continuing programs of biodiversity protection and enhancement, and
b) engaging in comprehensive land-use planning to protect natural resources

Priority Need 4 Provide for enhanced training and information by
a) completing hazard mapping and vulnerability assessments, and
b) expanding technical training through both external and local training

There is an explicit risk to donors of providing necessary assistance to any country in an attempt to strengthen identified needs or respond to humanitarian calls for assistance Due to the current state of governance in Burma, its ability to effectively implement or complete such projects, and over-all disaster manageability, degree of risk of providing the above needed assistance is high

Cambodia's Humanitarian Assistance Needs

Priority Need 1 Strengthen governance, support economic growth and meet basic human needs USAID has produced a strategy for FY 1994-1997 to address these needs

Priority Need 2 Develop a national policy and plan for disaster management including
a) a comprehensive national disaster management act,
b) a national committee for disaster management, and
c) a national disaster management plan

Priority Need 3 Enhance local response and relief capability through
a) coordination between National Committee on Disaster Management and the UN Disaster Management Team

Priority Need 4 Inculcate prevention, mitigation and preparedness (PMP) in all development projects by reviewing all projects for appropriateness and inclusion of such PMP policies

The degree of risk in providing the above needed assistance to Cambodia is high

China's Humanitarian Assistance Needs

Priority Need 1 Formulate a comprehensive, multi-sectoral national prevention and mitigation strategy at national and local levels by
a) developing a national disaster reduction plan, and
b) integrating relevant mitigation efforts into the plan

Priority Need 2 Conduct integrated national risk and needs assessments of disaster management including
a) supporting an integrated national hazard, vulnerability and risk assessment, and
b) formulating a comprehensive urban environmental management plan as a part of the National Plan

Priority Need 3 Develop and improve existing forecasting and warning systems including
a) enhancing marine, seismic and environmental monitoring,
b) improving forecasting and warning, and
c) using mass media to reduce the impact of natural disasters

Priority Need 4 Improve international cooperation and the exchange of information by
a) enhancing the relationship with the UN Disaster Management Team, through the UN Resident Coordinator, and
b) promoting study tours in regional developed countries and the West

The degree of risk in providing the above assistance to China is low relative to other regional countries

Lao PDR's Humanitarian Assistance Needs

Priority Need 1 Establish consolidated disaster management coordination by
a) creating a Lao Disaster Management Committee of relevant ministries,
b) encouraging the work of the UN DMT, and
c) establishing technical working groups

Priority Need 2 Establish an accurate and reliable information system by
a) creating a realistic mechanism for needs assessment,
b) improving information for forecasting and warning, and
c) improving transportation and telecommunications

Priority Need 3 Create an effective government response to disasters through
a) funding and stockpiling of strategic materials, and
b) conducting exercises to test equipment readiness

Priority Need 4 Create sustained public awareness, community preparedness and personnel training through
a) training of government staff in disaster management,
b) public education and community preparedness, and
c) development of related curricula for primary and secondary schools

Priority Need 5 Develop loss prevention programs including
a) Vientiane floodplain improvements, and
b) flood protection schemes in the Ban Hieng and Se Done basins

The degree of risk in providing the above needed assistance to Laos is moderate

Mongolia's Humanitarian Assistance Needs

Priority Need 1 Assist Mongolia in stabilizing its economy USAID along with other multilateral and bilateral donors have strategies in place to assist in this regard

Priority Need 2 Prepare for potential energy-related disasters including
a) contingencies for coal production short-falls or non-production,
b) a program in rigorous inspection and monitoring,
c) evacuation planning, and
d) technical assistance in non-capital intensive industrial energy

Priority Need 3 Improve warning systems and enhance preparedness activities including
a) improving and expanding warning and monitoring systems, and
b) making preparedness and response assistance available to Priority Need 4

Priority Need 4 Provide for comprehensive national assessment of risk by
a) performing hazard and vulnerability assessment and mapping,
b) conducting a national risk assessment, and
c) installing a management information system (MIS)

Priority Need 5 Develop, adopt, and implement mitigation and prevention strategies by
a) providing training programs for key personnel,
b) developing public awareness campaigns using NGOs or government interest groups, and
c) making long-term investments in infrastructure

The degree of risk in providing the above needed assistance to Mongolia is modest

Thailand's Humanitarian Assistance Needs

Priority Need 1 Enhance the Royal Thai Government disaster management institutional capacity by
a) developing a National Disaster Management Committee,
b) reviewing and revising disaster laws,
c) developing a Disaster Management Master Plan,
d) improving plan execution through exercises,
e) promoting ongoing national and regional risk assessment, and
f) establishing national collaborating institutes

Priority Need 2 Develop better humanitarian assistance and disaster reduction coordination and cooperation through collaborating institutions that function as technical institutions of excellence

Priority Need 3 Improve Thailand's preparedness for disasters by
a) promoting sustained public awareness on disaster issues,
b) enhancing responses and relief activities, and
c) improving communication and information systems

The degree of risk in providing the above needed assistance to Thailand is moderate

Vietnam's Humanitarian Assistance Needs

Priority Need 1 Foster sustainable development in areas prone to water disasters by
a) incorporating disaster mitigation considerations in the development process,
b) Seeking alternatives to the expensive older dike strategy of protection,
c) enhancing existing preparedness and response strategies,
d) providing training for key officials, and
e) protecting disaster-prone areas and sensitive environments against development

Priority Need 2 Preserve the remaining forests of Vietnam by protecting disaster prone areas and sensitive environments

Priority Need 3 Prepare for sustainable urban environmental development by promoting environmental risk assessments in all urban and industrial areas

Priority Need 4 Establish a multi-purpose managed information system including utilization of effectively geographic information systems

The degree of risk in providing the above needed assistance to Vietnam is modest

Transnational Humanitarian Assistance Needs of the East Asia Region

On a transnational basis, there are a number of common needs that may be economically met by cooperation and joint ventures These include

Priority Need 1 Sustaining regional and international coordination

Priority Need 2 Assuring regional mitigation initiatives are included in development

Priority Need 3 Developing regional information and advice on disaster management issues

Possible steps to help meet these needs include

- utilizing the UN Disaster Management Teams and country International Decade for Natural Disaster Reduction Committees as focal points for transnational coordination and cooperation,
- establishing and supporting regional collaborating institutions,
- implementing, promoting and using uniform GIS and MIS systems, and
- supporting regional networking, training and information exchange

Multilateral and bilateral donors over the years have provided generous support to most countries in the region in an effort to promote disaster reduction and provide humanitarian assistance Without exception and regardless of political or economic ties, the US government has responded to all countries of interest when basic human needs had needed to be met However, programs in Thailand are now being phased out due to the stability of the country and its economic success US development interests are now being focussed on assisting Cambodia, Laos, Mongolia and Vietnam in strengthening their in-country disaster management capacity Summaries of other bilateral donors, individual governments and the multilateral donors, such as the Asian Development Bank, are provided latter in this report Of note is the increased contribution by Japan, Korea and other Asian nations to the seven countries of concern

The critical role played by the UNDP through its Resident Representatives as UN Resident Coordinators and the important coordinating role of the UN Disaster Management Teams are also examined and supported throughout this report

Long-Term Humanitarian Assistance Needs in the East Asia Region

Donors and the international community will continue to be requested to assist in the East Asian region beyond the five-year time frame of the RSM/EA Strategic Plan The following are the region's major long-term humanitarian assistance needs

- Humanitarian assistance through relief and response needs to be provided on a continuing basis Burma, Cambodia, Laos, Mongolia and Vietnam will continue to be so vulnerable to disasters they will not be able to meet necessary relief and recovery needs from major events on their own

- Risk assessments at country and provincial levels need to be undertaken on a continuing basis throughout the region National disaster management plans should be reviewed annually and policy changes affected as results of risk assessments indicate new management directions

- Disaster prevention, mitigation and preparedness measures need to be included in all development programs and projects All donors need to include prevention, mitigation and preparedness measures in their future development projects National IDNDR committees and the UNDP can serve as important watchdogs

- Disaster warning systems need to be strengthened throughout the region Substantial changes in monitoring and telecommunications technologies in the next few years will dictate new systems that may require external funding for lesser developed countries

- Local emergency response systems need to be strengthened throughout the region Most response and relief is carried out at the local level, and there is likely to be a long-term need for strengthening such capacity in Burma, Cambodia, Laos, and Mongolia

- Human resources and poverty alleviation efforts need to be enhanced throughout the region The poor, as major targets of disasters, represent the major vulnerability in the East Asia region Programs that reduce growth rates, enhance societal resilience, and improve economic conditions will reduce human populations a risk from disasters

SECTION 1

INTRODUCTION AND OBJECTIVES

The strategic goals of the United States Agency for International Development (USAID) for humanitarian assistance are to save lives, minimize suffering and property loss, help return to self-sufficiency after a disaster, and reinforce democracy The Agency looks upon humanitarian assistance in terms of three priority areas 1) disaster prevention, mitigation and preparedness (PMP), 2) disaster relief and rehabilitation at the time disaster strikes, and 3) aiding countries in post-crisis transition This latter area of opportunity arises in transitional situations occurring in some countries as they recover from a national conflict, a significant political transition, or man-made or natural disasters

Complex disasters have become a major focus of USAID disaster response efforts and are a major concern of this report These complicated disaster situations often have political, military and humanitarian components associated with civil conflict and the displacement of populations, frequently in the millions, thus hampering the distribution of humanitarian assistance Democracies arising from civil conflict, as well as those in transition from former political alliances, are often particularly vulnerable to other man-made and natural disasters Hence adequate and well-directed humanitarian assistance is of vital concern and interest

USAID's Regional Support Mission for East Asia wishes to determine the state of humanitarian assistance and disaster relief needs in the East Asia region and, specifically, in seven target countries Burma, Cambodia, China, Laos, Mongolia, Thailand and Vietnam In doing so the Mission seeks to meet the Agency's humanitarian assistance objectives of

- promoting disaster prevention, preparedness and mitigation to minimize the impact of disasters on vulnerable populations,
- timely and effective delivery of appropriate and useful disaster relief and short-term rehabilitation supplies and services,
- preserving basic institutions of civil governance during disaster and crisis,
- supporting new democratic institutions in periods of national transition, and
- developing and reinforcing local capacity to anticipate and deal with disasters and their aftermath

It is also useful to note that the current ten-year period (from 1990 to 1999) has been designated by the United Nations General Assembly as the International Decade for Natural Disaster Reduction (IDNDR) Its stated goal is to "reduce through concerted international action, especially in developing countries, the loss of life, property damage, and social and economic

disruption caused by natural disasters " Specifically, the Decade's objectives are to improve the capacity of each country to mitigate the effects of natural disasters, devise appropriate guidelines and strategies for applying existing and technical knowledge, to foster scientific and engineering endeavors aimed at closing critical gaps in knowledge, to develop measures for and disseminate existing and new technical information related for assessment, prediction, prevention and mitigation of natural disasters USAID's goals for humanitarian assistance and disaster relief not only compliment Decade goals and objectives but exceed them in terms of the scope of hazards and the breadth of interests in which assistance and reduction efforts are provided

To help the RSM/EA determine exactly what role humanitarian assistance activities should play in its programs for the East Asia region, it has contracted with the Asian Disaster Preparedness Center (ADPC) to outline the current state of that assistance, provide for an assessment of the risk of disaster in selected countries, and identify appropriate needs and strategies to strengthen disaster management of the region To accomplish those tasks, ADPC was requested to complete the following Terms of Reference

- determine the humanitarian assistance needs of the region and of the seven countries, with an identification of the key institutional players in humanitarian assistance and identification of commonalties and disparities,
- describe USAID's current activities in the provision of humanitarian assistance in the region, with a measure of success and lessons learned,
- describe the current role of other donors in regional humanitarian assistance,
- determine the humanitarian assistance needs of the selected regional countries, identifying those that can be met in a five-year time horizon,
- assess the longer term humanitarian assistance needs and opportunities in the region, and
- through this report, provide a summary of the above with a bibliography and other supporting annexes

The ADPC has, through its network in the region and within the target countries as well as through its resource library and that of the Asian Institute of Technology (AIT), identified and determined the information that follows References from all sources are cited in Annex A Several individuals, within governments, non-governmental and international non-governmental agencies, and among donors have also provided additional information for this report in personal communication ADPC is solely responsible for the content and comments contained herein

SECTION 2

REGIONAL DISASTER RISK ASSESSMENT

While this report focuses on the seven countries of Burma, Cambodia, China, Laos, Mongolia, Thailand and Vietnam, the inherent relationships and influences among these countries and others of the Asian region cannot be avoided Therefore, this report takes into consideration developments in a much broader array of countries in the East Asia region This larger region includes the Association of Southeast Asian Nations (ASEAN) of Brunei, Indonesia, Malaysia, Singapore, Thailand, the other countries of Southeast Asia, including Burma, Cambodia, Laos, Vietnam, and the East Asian countries of China, Hong Kong, North and South Korea, Macao, Mongolia, Taiwan, and Japan

This section elaborates on

- a conceptual definition of disasters and their risk,
- the types of hazards encountered in each country of interest,
- the scope and level of vulnerabilities to those disasters,
- the capacities of each country to respond, recover, prevent, mitigate and prepare for disastrous events, along with that country's disaster management organizational structure, and
- a summary assessment of the hazards, vulnerabilities, manageability and disaster risk

2 1 Risk Assessment of Disasters

The threatening events that represent the hazards of the East Asia region, summarized in Table 2 1, are common to many areas of the world They range in varying importance and severity throughout the region and between countries Hazards arising from natural events include typhoons, earthquakes or volcanic eruptions Man-made ones are fire, explosion, structural collapse or hazardous chemical releases These latter are commonly associated with technological and economic development of industrialization, urbanization and extraction and use of resources and energy There are also combination natural-technological hazards created by humans with the help of nature flood from deforestation or dam collapse following excessive rainfall, drought following inappropriate agricultural practices are examples Of current interest are the complex disasters and emergencies resulting from the combined hazards of displaced persons, civil conflict and natural hazards This category is more difficult to not only define but to prevent, as it is usually associated with issues of national security

Table 2 1· Summary of the Hazards of the East Asia Region

Country	Major Hazards	Minor Hazards
Burma	Fire, flood, typhoon and storm surge	Civil conflict, earthquake, deforestation, drought, and landslide
Cambodia	Explosion, floods, typhoons and storm surge	Civil conflict, deforestation, drought, famine, fires, pests and major accidents
China	Drought, earthquake, flood, typhoon and storm surge	Cold weather, deforestation, epidemics, explosion, fire, landslides and mudflows, major accidents, pests, water and air pollution, windstorms and tornados
Laos	Drought and flood	Civil conflict, deforestation, epidemics (including HIV/AIDS), traffic accident, wind storms, and refugee/ displaced person influx
Mongolia	Blizzard, fire, snow storm, dust storm, desertification, and earthquake	Drought, environmental pollution (air, water), flood, pests and epidemics
Thailand	Explosion, fire, flood, and major accident	Civil unrest, drought, earthquake, landslides, major accident, refugee influx, typhoon and storm surge
Vietnam	Deforestation, flood, typhoon and storm surge, wind storm and tornado	Fire, drought, earthquake, landslide, major accident, and cold weather

All of these hazardous events in and by themselves are harmless For an accident or disaster to occur a threatening hazard must impact a vulnerable element, that is, some feature susceptible to damage A convenient categorization of vulnerabilities are human populations, structures, economic assets and sensitive environments Once a hazard strikes a vulnerability or a vulnerable element and the resultant damage exceeds the capacity of the community to cope, then a disaster has struck

- *Disaster = Hazard x Vulnerability*

The chance or probability of a disaster actually resulting from the impact of a hazard on vulnerable elements will in a great measure depend on the capacity or the level of management of the country to respond, recover or reduce the resultant damage The risk of a disaster is therefore the product of these three

- *Risk of Disaster = Hazard x Vulnerability x Management*

Management occurs at some level and at all stages of the disaster continuum of response, recovery, rehabilitation, prevention, mitigation and preparedness Management efforts in mitigation and preparedness are emphasized for natural hazards where little can be done to prevent the hazard itself Efforts aimed at prevention are frequently emphasized for man-made events, since any man-made created situation has the potential for control Determination of humanitarian assistance needs and risk reduction strategies necessitates a requisite assessment of disaster risk, performed to evaluate the identity, scope and magnitude of hazards, the level of vulnerability, and the strength or its lack in managing the hazard and the vulnerabilities

Objective, quantitative risk assessments of the region and the seven countries of interest are, of course, not practical for this report The assessments that follow are for the most part subjective in nature, based on the available literature, discussions with relevant experts and the experience of ADPC Only China can claim accurate, valid risk assessments for some hazards More rigorous, statistically-valid assessment of risk is a major recommendation of this report

2 2 Hazards and Vulnerabilities of the Region

The most severe hazards to the region and the seven countries of concern are, by far, water resource-related typhoon, storm surge, flash flood, flood from high rainfall, and drought [1] Damage from flood from all sources is increasing through several mechanisms 1) a growing population of poor and landless who find habitation only in flood-prone areas, 2) increased number and density of people simply from population growth with resultant urban and rural encroachment into flood-prone areas, 3) location of development and industrial zones in flood-prone areas, 4) deforestation and resultant sedimentation that clog river and drainage channels, along with decreased sorptive ability of previously forested areas, 5) deterioration of old flood mitigation structures (dikes, channels, etc) and 6) ineffective or poorly enforced prevention, mitigation and preparedness measures Drought is being exacerbated by deforestation, lost infiltrative capacity of soil, and microclimate changes associated with land-use practices (forest to agriculture, for instance)

Earthquake and other seismic events represent the next severest class of natural hazards to the region Burma, China and Mongolia are particularly vulnerable to them Historically, China has had the most devastating earthquakes, with 860,000 lives lost in 1556, and over 300,000 killed in 1850 Tsunamis (waves generated by off-shore earthquakes) are also reported for China Cambodia, Laos, Thailand and Vietnam sit more securely of the earth's mantle, seismic events in those countries are rare Landslides may be triggered by seismic events or caused by development activities of humans, such as road construction or deforestation, that destabilize natural slopes

Another natural hazard in the region is wind storms, which are often the result of typhoons or tropical storms that strike coastal areas Those within Laos, Mongolia and the interior of China being, however, are related to local climatic and seasonal conditions Cold weather is a minor hazard in most East Asian countries of interest, except many regions of China and most of Mongolia, where shelter and energy requirements for heating are of major concern Major losses in human life, crop damage, and lost livestock occur annually in both countries

Table 2 2 summarizes the toll of natural disasters in terms of lives and people affected for the seven regional countries of interest China and Vietnam have each had more than 25 natural disasters strike their countries in the past 12 years, a distinction shared by only eight other

[1] ESCAP, 1991, *Natural Disaster Reduction in Asia and the Pacific*

countries in the world A more detailed listing of disasters for the seven countries of concern, along with level of lives lost, injured, displaced and total economic loss as shown in Annex B

Table 2 2 Summary of Land Mass, Population and Impact of Natural Disasters

Country	Area, square kilometers	Population 1995 estimate	Natural Disaster Toll 1968-1992 Deaths	People affected
Burma	678,030	46,548,000	275	248,442
Cambodia	181,000	9,447,000	40,011	347,616
China	9,597,000	1,238,319,000	252,682	23,406,056
Laos	236,725	4,882,000	44	192,000
Mongolia	1,565,000	2,498,000	123	- -
Thailand	514,000	58,265,000	2,256	515,767
Vietnam	331,169	73,811,000	6,395	1,598,725

Sources McGraw-Hill, 1994, *Atlas of the World*, ESCAP, 1994, *Regional Statistics Summaries* Based on IFRC, 1994 *World Disaster Report*, modified by OFDA data, 1993

Increasing industrialization and urbanization, with attendant resource depletion, all attributes of development, are increasing the vulnerability of regional nations to disasters of all forms Of particular concern are the increased technological hazards of fire, explosion, structural collapse and hazardous chemical release Air and water pollution and accumulation of solid and hazardous wastes are all attendant with resource and energy use Hazards often considered solely of natural origin may also be created or enhanced by development activities Floods, landslides and drought are now often associated with land-use activities that destabilize natural systems International global warming, due to energy production, industrial activity and the destruction of forests, has the potential for direct increase on climatic conditions, as well as the severity, intensity and frequency of storm and typhoon events, and drought

With the exception of Thailand, East Asia's most dramatic increase in vulnerability is through population growth Table 2 3 illustrates the increase the seven countries will experience within the next generation if pro-active and intensive family planning is not carried out

A major segment of that expanded population in all countries of interest will be the poor, those most often impacted by disasters and those least capable to deal with such events An increased urban population, with over 50 percent of all East Asians living in cities by the Year 2000, will enhance the devastating effects of hazards associated with urbanization and industrialization The very development supported by international donors, along with excessive population growth and the socio-political instability created by an expanded poor population, along with ethnic, religious and political differences, increase the vulnerability of the region to disaster

Table 2 3. Growth Rate and Population Doubling of Some East Asian Countries

Country	Growth Rate Percent 1994	Population Doubling in Years
Burma	2 1	33
Cambodia	2 6	35
China	1 4	49
Laos	2 9	24
Mongolia	2 7	26
Thailand	1 3	55
Vietnam	2 2	32

Source UNFPA, 1991, *Population, Resources and the Environment The Critical Challenge*

Warnings of impending chaos created by that mixture are already being noted A need for regular risk assessment is imperative to measure any transitional change in vulnerabilities related to the potential for complex disaster, the most difficult of all disasters to counter, control and pay for The cost of life, whether that life is male or female, upper or lower class, educated or uneducated, is difficult to quantify in many regional countries, but estimates are required for effective cost-benefit analysis of development activities that increase vulnerabilities

The dramatic increase in economic assets in most of the countries of interest represent the second broad class of vulnerabilities now exposed to the hazards of the region Only Burma, Cambodia, and Laos, three of the poorest countries, can indicate their respective population as the major vulnerable element exposed to disaster

Attendant with resource use, industrialization, and urban growth is degradation of the environment Sustainable development, the utilization of natural resource at such a rate that their use by future generations is not jeopardized, is more a desired plan of action than a reality in East Asia Both this report and the Environment Sector report, in which environmental issues are more fully elaborated, point to resource usage that exceeds the sustainable yield of the natural systems within the region

2 3 Management of Hazards and Vulnerabilities in the East Asia Region

Although sustainable development is a stated interest of most donors, a modest inventory of costs for reconstruction following natural disasters has indicated a need to concentrate efforts in development projects on those that incorporate prevention, mitigation and preparedness measures The region is becoming well-versed on such strategies for natural disasters, with a somewhat lesser degree of familiarity with the management strategies for technological hazards, the latter

of which are even easier to control But there is little to no experience or fundamental understanding of the remedies for complex disasters in the region

It has only been in recent years that disaster hazards and their consequences have been viewed in the broader management context of prevention, mitigation, and preparedness This has now resulted in disaster issues being more frequently considered in the economic and social development of regional countries Previous Five-Year Economic and Social Development Plans of Thailand, for instance, emphasized development for economic growth The 8th Five-Year Plan, now under development, will include a separate section on disaster management to promote protecting the significant economic gains the Kingdom has experienced in recent years

International initiatives specific to disaster reduction in the region have had moderate to poor degrees of success Most notably, the UNDP/DHA-sponsored Disaster Management Training Program (DMTP), completed in August 1994, provided for country workshops in the 60 most disaster prone countries of the world In East Asia those are represented by Burma, Cambodia, China, Thailand and Vietnam The focus of the workshops were two-fold 1) to enhance the working relationship of the individual country with UN counterparts through a Disaster Management Team (DMT), and 2) identification and promotion of strategies to strengthen country disaster management The country workshops were very useful in identifying individual country disaster management strengthening needs UNDP headquarters will, through a special fund, provide limited financial assistance to countries in addressing needs of high priority The full text of those needs and recommendations for Cambodia, China, Thailand and Vietnam is shown in Annex C

The United Nations General Assembly designated 1990 to 1999 as the International Decade for Natural Disaster Reduction (IDNDR) To date awareness activities and program initiatives in the region under the Decade have been slow, with uncertain direction and emphasis and with few, if any, tangible or demonstrable benefits Only two of the seven countries, China and Vietnam, have effective IDNDR committees This parallels country interest and initiatives in active disaster management in the context of response, recovery, rehabilitation, prevention, mitigation and preparedness The failure of the Decade organizers to generate wider public awareness to disasters was a focus of the IDNDR World Conference held in Yokohama during June 1994

Another initiative to facilitate disaster management coordination throughout the world, as well as in the East Asia region, has been the establishment of UN Disaster Management Teams Under the direction of the UN Resident Coordinator, who represents the Department of Humanitarian Affairs (DHA) and is usually the UNDP Resident Representative, relevant UN agencies carry out disaster response activities with their government counterparts At the time of disaster, situation reports are provided to UN headquarters in Geneva and New York and to the international community appraising them of potential needs in international assistance Tasks of the DMT include response needs assessments, consolidation and coordination of international relief, encouraging the strengthening of disaster preparedness and response though inculcation of prevention, mitigation and preparedness in UN agency development projects, continual linkages with the government, NGOs and embassies regarding disaster management and establishment of a UN DMT structural organization and function that meet the tasks DMTs in the region are of

varying use, strength and credibility, depending a great deal on the interest and initiative of the incumbent UN Resident Representative

Through the interest of UNDP, an initiative to establish Regional Collaborating Institutions (RCIs) was begun in 1992 and developed to the point of a preliminary project proposal in 1993 In that proposal academic or government technical centers with considerable expertise in flood, typhoon, earthquake and economic assessment of disasters would be established for the Asia and Pacific region, with coordination through ADPC All regional countries affected by these hazards or requiring economic assessment would have been beneficiaries of those RCIs and their technical expertise That initiative has now been tabled by UNDP, but a variation of it is being revised under a ADB grant to review the role and services of the ADPC and how it can best serve the Asia and Pacific regions The recommendations of that initiative are expected in January 1995

Several institutes of technical excellence or collaboration on disaster research and information in the region are known but variously used They are represented by the

- Asian Institute of Technology A graduate school offering advanced training in engineering, management, telecommunications and other relevant disaster management related subjects,

- Asian Disaster Preparedness Center Disaster management training and information dissemination for countries of Asia and the Pacific,

- Chinese Ministry of Water Resources and Electric Power This Ministry has particular expertise in flood control, warning and flood preparedness,

- PAGASA The meteorological department of the Philippines, with particular expertise in typhoon warning, and public awareness and education The agency is also WMO'S node and focal point for the region,

- Rorkee Institute of India A technical school specially qualified as a center of excellence for seismic hazard prediction and mitigation, and

- UNEP-GRID The Global Regional Information Database is meant to coordinate all GIS-related activities of Asia and the Pacific

Fuller utilization of such regional centers should be realized, beginning with a complete inventory and description of institutional capability in transnational information, training and expertise exchange and dissemination of that inventory to relevant regional countries

A broad brush stroke risk assessment of the seven target countries is presented in Table 2 4 Through the efforts of USAID's Office of Foreign Disaster Assistance (OFDA), a database of natural disasters has been compiled which includes an estimation of a country's vulnerability to those hazards along with the institutional capacity for reduction and response activities The IDNDR secretariat has also made estimates of management and vulnerabilities ADPC has

determined the level of disaster management from its own resource library and knowledge of the region The table is supplemented by more definitive risk assessments that follow for each country Although the table lists capacities and capabilities only for natural disasters, the same level of management tends to be available for technological, environmental and complex disasters The table is useful as an over-view of the more definitive reviews that follow and in the determination and level of needs required to strengthen regional disaster management and capacities

Table 2 4 Estimate of Natural Hazards, Vulnerabilities and Disaster Management in Selected Regional Countries

Country	OFDA or IDNDR Database			ADPC Estimate		
	Types of Natural Disasters	Institutional Capacity 5 high, 1 low	Vulnerability 3 high 1 low	Disaster Plans/ Legislation	Response 3 strong 1 weak	Mitigation 3 strong 1 weak
Burma	4	2	2	yes	2	1
Cambodia	3	1	3	no	1	1
China	6	3	3	yes	3	2
Laos	3	2	2	yes	1	1
Mongolia	4	3	2	yes	3	2
Thailand	4	4	2	yes	3	2
Vietnam	5	2	2	yes	2	2

Sources OFDA, 1991, *Assessment of Worldwide Disaster Vulnerability*, IDNDR, 1994, *Statistical Information*

2 4 Disaster Risk Assessment in Burma

The Hazards and Vulnerabilities in Burma Burma enjoys a benign climate, with a moderate monsoon from June through September, a cold season October to February and a hot, dry season from March to May Floods, which occur almost every year during the monsoon season do not cause significant damage as the Burmese have accustomed themselves over centuries to such events and have made the necessary social and cultural adjustments to accommodate them A flood in 1991, when dikes along the Ayerwaddy River broke, was the first major flood in over 17 years Landslides, also associated with monsoon rains, are infrequent and cause little damage Droughts are not reported to be serious

Because of the funnelling effect of the Bay of Bengal, most typhoons strike the neighboring country of Bangladesh Such storms and their accompanying surges threaten the country two to four times a year, but only actually affect Burma every four years or so The State of Arakan and the Division of Irawaddy are most vulnerable to typhoons, while the Division of Sagaing is vulnerable to floods

The country is the landfall of a major fault zone that runs up out of the Bay of Bengal Although earthquakes have historically created little problem, the potential exists and must be borne in mind in development projects The most devastating seismic event was the earthquake of 1931 which struck the Pegu area with the loss of thousands of lives Modest earthquakes of less than 4 5 on the Richter scale are commonplace to Burma

The major hazard in Burma is fire of human origin, which accounts for the greatest loss of life and property annually The majority of all fires are residential and such events occur in both rural and urban areas A massive government housing program began in 1946 to relieve problems of destitution and homelessness following World War II Town planning and zoning were not effectively carried out and houses, primarily of wood, were constructed in close proximity to each other Population growth has since increased the number of houses and the poor, who tend to live in high density communities Fire are particularly devastating during the dry season which occurs from January to May

Civil unrest is a centuries-old hazard of Burma, being somewhat contained during the period of colonial rule (1897-1942) Between 70,000 and 140,000 ethnic Burmese now reside in Thailand in their effort to escape combat between Karin, Karen, Mon and Shan insurgents and Burmese government troops A large number of students moved into Thailand following the uprising of 1989, but have since either immigrated to a third country or reside in a safe area outside of Bangkok

There is a low level of industrialization, which makes industrial pollution and environmental degradation associated with resource use minimal and localized The government similarly believes the rate of deforestation to be low, although the rate is reported at an annual 220,000 hectare loss of forest cover The majority of that loss is to shifting cultivation, local fuel wood use and the impact of population growth Seventy percent of energy consumption is from forest resources Rafts of sawn and raw timber are common sights as they cross the Salaween River into Thailand

A growing concern is expressed by international and local health officials over the rise in HIV/AIDS, particularly in those states bordering Thailand and Laos An estimated 200,000 people, 47 percent being drug users, are reported to have contacted the HIV virus in Burma That epidemic is more fully discussed in the Health Sector Report

A population density of 161 people per square mile, one of the lowest in Asia, is a major reason for the minimal impact of hazards and low level of disasters in the country However, the current estimated population of 46 million people will double in 33 years, significantly increasing the risk of disasters for the next generation

Disaster Management in Burma The current government of Burma, the State Law and Order Restoration Council (SLORC), has a stated policy of promoting disaster reduction and effective response at times of crisis During the UNDP/DHA-sponsored Disaster Management Training Workshop in May 1994, the government adopted a comprehensive national policy on disaster management All aspects of that management have been placed with the National Disaster

Committee (BDMC), in the Ministry of Social Welfare, Relief and Resettlement (MSWRS) That Committee replaces the Central Committee for Disaster Prevention formed in 1978 The Director General of MSWRS is the Secretary of the Committee Other relevant Ministries included in the Committee are Health, Meteorology and Hydrology, and Irrigation The People's Police Force and the Burmese Red Cross are also members

The BDMC is responsible for creating policy and implementing action to mitigate the effects of disasters through disaster preparedness planning, recovery and relief strategies, and rehabilitation The BDMC is set up to mirror all levels of government administration National, State/Division, District, Township, Wards and Village Tracts The Committee is *ad hoc* and only convenes during times of crisis

A major partner in disaster relief and response is the Burmese Red Cross The agency maintains a network of 200,000 volunteers who are trained to various levels of first aid Most Red Cross activities are restricted to initial response, although there is occasional involvement in resettlement and rehabilitation A national warehouse is maintained in Rangoon which provides support to 15 regional warehouses

Actual disaster preparedness and response by Burmese people has been developed primarily on culture, social and administrative practices, rather than any formal statement of policy or formal legislation A feature of the recently-stated policy is that it has a centralized, national focus and is not necessarily responsive at the local level in a timely manner The Burmese Red Cross may represent a much more effective agency for delivering relief services to communities Because of the *ad hoc* nature of response coordination, the government has noted already that improvement in administrative effectiveness is necessary In an effort to promote that improvement the UN DMT became active in May 1994 Through the UNDP Resident Representative as the Resident Coordinator of relief by UN agencies, the DMT has now developed a liaison with the government to coordinate international assistance The Team, in its first field exercise, conducted an assessment of damages following a typhoon that struck Rakhine on May 2, 1994 In spite of these recent improvements, including the assistance of the UN DMT, the overall effectiveness of Burma to respond to current levels of crisis remains modest

To enhance official knowledge of disaster management, the MSWRS conducts natural disaster training courses at the State and Division level Participants come from departments which make up the BDMC and are recommended and approved by SLORC Members of the Red Cross and local voluntary services are eligible to attend such training courses, funded by the government Additional training programs, including participation by ADPC, are expected once funding is received by UNDP The International Federation of the Red Cross and Red Crescent Societies (IFRC) also provides assistance to the Burmese Red Cross in training its personnel

Despite SLORC's announced policy of sustainable development, there is no evidence of prevention and mitigation activities in development plans Hazard mapping is reportedly being carried out by the Ministry of Meteorology and Hydrology for flood and landslide prone areas, with vulnerability mapping also underway The town planning section of the Department of

Human Settlements has the capability of requiring mitigation measures, but there is a lack of coordination at the local level where national policy must be implemented Other mitigation deficiencies are highlighted by the following example the building code within Rangoon simply restricts structures to five stories for aesthetic reasons, not for seismic protection, hazard prevention or structural integrity Pressures from the current economic depression and development interests are considered sufficient to see the height restriction "relaxed "

Among on-going mitigation practices, only 15 percent of all agricultural land is protected against flood by dikes or drainage schemes Additional need for dikes has not been identified by assessment, nor is there a land use-plan that restricts development in flood-prone areas Storm surge and typhoon warnings, issued by the Department of Meteorology and Hydrology, require better dissemination and understanding by the public to enhance preparedness for such events

Fire suppression is left to individual communities, although at the national level campaigns of public awareness and fire prevention are on-going Organized fire brigades are operational only in larger urban areas In most instances, equipment is dated, as old as 1950's vintage, and ineffective Since 1990 the government has instituted a program to re-house slum dwellers and relocate victims of fires New housing is planned with spatial zoning, practices the government believes to have cut the annual economic loss due to fires by US$68,000 (400,000 kyat)

Table 2 5 presents a summary overview of the disasters of Burma As noted, the current levels of management over most hazards is generally poor Even though the hazards themselves may be of low to modest importance, that deficit management raises the actual risk to somewhat higher concern Suggestions of strengthening that management are discussed in Section 4

Table 2.5: Assessment of Disaster Risks in Burma

	Hazard	Vulnerability	Management	Risk of Disaster
Civil Unrest	Moderate	High	Poor	High
Drought	Low	Moderate	Poor	Moderate
Flood	High	Low	Moderate	Moderate
Earthquake	Low to Moderate	Low	Poor	Moderate
Epidemics	Moderate	Moderate	Poor	Moderate
Fire	High	Moderate	Poor	High
Landslides	Low	Low	Poor	Low
Typhoon	High	Moderate	Moderate	Moderate

Source Cosgrove, 1994, ADPC 1994, database, UNDP/Burma, 1994, personal communication

2 5 Disaster Risk Assessment in Cambodia

The Hazards and Vulnerabilities in Cambodia Cambodia has been a major battleground for over 30 years, the net result of which has been a destruction of traditional family support networks, and the creation of the poorest countries in the world In the 1960s, massive bombing of Cambodia was carried out by US forces in an effort to stop North Vietnamese forces from reaching southern Vietnam through Cambodian territory Khmer Rouge cadres, under the direction of Pol Pot and under support of Vietnam and China, unleashed a guerilla war against the Lon Nol republic in 1971, and finally crushed that government in 1975 The next four years witnessed a brutal social experiment in which over one million Cambodians were exterminated or died from starvation, cities were emptied, family structure destroyed and communications with the world cut off Fearing encroachment by the Khmer Rouge into its own territory, Vietnam sent its armies into the country in 1978-1979, pushing the Khmer Rouge back to strongholds in the north and northwest, along the border with Thailand Within a short time it was clear to the remaining Cambodians that events were not necessarily to their benefit what remaining rice there was after four years of crop failures, agricultural mis-management and decreased production was routed off to Vietnam Throngs of Vietnamese immigrants added additional stress to an already over-stressed society A mass exodus of Cambodians began in November of 1979, with an estimated 500,000 Cambodians, 80 percent suffering from malnutrition, malaria or war wounds, held at the Thai-Cambodian border Under pressure from Western governments, the Thai government reluctantly allowed these individuals to enter refugee camps in Thai territory which many were destined to live in for over 12 years

With the signing of the Paris Peace Accords in 1991, the long road to repatriation essentially began The last camps in Thailand were closed in 1993 and the reconstruction of Cambodia underway That reconstruction and resettlement of over 350,000 returning refugees has been met with a formidable array of hazards that stand poised to deter its successful and the future sustainable development of a devastated country As a result of the long period of civil conflict, millions of mines and abandoned armaments still remain in the country That danger alone, along with a deteriorated road network and telecommunications, has made resettlement difficult

The Tonle Sap has served as an effective flood surge reservoir for the Mekong River for centuries Siltation from resource exploitation is now threatening that storage capacity, as well as the productivity of aquatic life for much of the Mekong Basin With the deterioration during the Khmer Rouge Era of drainage and irrigation systems constructed over hundreds of years, local flooding has been exacerbated The 1991 flood, the most devastating in years, effectively brought reconstruction to a halt until water receded

Typhoons can and do strike Cambodia directly, as did Typhoon Fred in 1991 The usual effect, however, is intense rainfall of weakened events that pass into Cambodia from Vietnam Those tropical storms create significant local flooding that may persist for several days

Cambodia has found itself in the difficult position of having no option but to exploit its abundant natural resources to keep itself financially afloat Deforestation is occurring at a rapid rate Even during the UN-imposed ban on logging, export of timber through Laos and Thailand was

reported Uncontrolled mining and polluted water are noted as major environmental problems in the country The potential for fires, pest infestations and epidemics is also present Of growing concern is a fear that Cambodia is being exploited by regional countries as a dumping ground for unwanted hazardous waste [2]

Cambodia's vulnerabilities are essentially its people and natural environment With population growth exploding at 2 6 percent annually, the estimated 9 6 million Cambodians now will be 19 million in the Year 2020 That current population is under-educated, stressed with high rates of infant mortality and infectious diseases, often isolated, and very fragile

Disaster Management in Cambodia With the formation of the Royal Government of Cambodia (RGC) in November 1993, a Constitution was adoption and the free election of officials carried out The Kingdom thus gained full diplomatic recognition, with expectations of relative political stability and increased international assistance Most development activities are currently coordinated through the Cambodia Development Council, which in March 1994 replaced the previous National Committee for the Rehabilitation and Development of Cambodia

The RGC has established rehabilitation and reconstruction as central and necessary to the country's growth Development, including prevention, mitigation, and preparedness measures to protect economic gains, is the hallmark of the *National Program to Rehabilitate and Develop Cambodia*, adopted by the government in March 1993 That program's emphasis is on "increasing Cambodia's capacity to manage and finance its (own) investments and undertakings" and regards "people as the country's most important asset," that "investment in people (is) fundamental to the quest of rehabilitation and development "

Donor program coordination is undertaken by the International Committee on the Reconstruction of Cambodia (ICORC) Created in 1991 as part of the Paris Peace Accord, the Committee is comprised of 30 participating countries and 14 international organizations In a March 1994 meeting in Tokyo, donors pledged additional monies to already existing funds, bringing total reconstruction and rehabilitation program grants, loans and gifts to US$1 2 billion, all in support to rebuilding Cambodia through humanitarian assistance, rehabilitation, reconstruction and enhancement of the democratization process

USAID/Cambodia recognizes that NGOs provide a major platform to implement necessary institution-building, infrastructure and economic development programs A major obstacle to prevention of disasters that threaten the country and its current pace of development is a lack of essential human resources Resettled people are still critically vulnerable Government workers who support humanitarian assistance programs, (if these programs exist) are poorly educated and lack necessary administrative and decision-making skills NGOs offer a rapid, effective means for that development Many national NGOs in Cambodia are relatively new, however, arising along with the current government Although their staffs are frequently

[2] UNDP/DTCP, 1994, *Cambodia Disaster Management Training Program Country Workshop*

inexperienced in the programs with which they are mandated to provide, they do offer an understanding of culture and society that must be learned by international NGOs

An example of such a local NGO is the Cambodia Development Resource Institute (CDRI), organized and recognized by the Council of Ministers in 1990 The Institute was established to "enhance human resource development in Cambodia and to conduct research and analysis which can contribute to the formulation of sustainable development policies and strategies " Other similar organizations have also been created

International NGOs have been in Cambodia for some time and include such well-known agencies as CARE, Seventh Day Adventist World Service, Irish Concern and the International Federation of Red Cross, the latter in affiliation with the Cambodian Red Cross However, that association points to a crucial issue international agencies tend to control both financial and personnel resources in Cambodia, thus local NGOs are dependent on them for support Therefore, advocacy and support to local programs are considered important roles of these larger international agencies

Even with institutional improvements, as of July 1994 no formal structure for disaster management, with its mandates for prevention, mitigation and preparedness in development plans and processes, exists in Cambodia During the recent UNDP/DHA-sponsored Country Workshop in July 1994, a proposed structure for such management has determined and gained tentative endorsement by the RGC That structure, shown in Annex C, has yet to be put into practice

Deficiencies in disaster management are extensive There is a poor early warning system for floods, as well as no exercises for preparedness for disasters of any type Affiliated laws, such as those regarding the environmental and labor, are just being enacted and will require time to become effective, if adequately enforced and obeyed Emergency settlements themselves are not well managed and represent a significant vulnerability to the hazards of the country Lack of effective management of hazards in Cambodia is clearly illustrated in the Table 2 6

Besides the lack of a basic disaster management structure, there is little coordination among government agencies and between the government and NGOs Corruption is noted as quite high in all levels of government, particularly the military Although ICORC is relatively effective in international government organization coordination through the Ministry of Foreign Affairs National Committee, local NGO coordination is poor Improvement in humanitarian assistance and disaster reduction management in Cambodia, as well as sustainable development and continued economic progress, will be difficult due to the current political and economic instability, continued Khmer Rouge insurgency, foot dragging by the RGC on key reforms, and corruption

Table 2 6 Assessment of Disaster Risks in Cambodia

	Hazard	Vulnerability	Management	Risk of Disaster
Civil Unrest	Moderate	High	Poor	High
Drought	Low	Moderate	Poor	Moderate
Epidemics	Moderate	High	Moderate	High
Explosion	High	Moderate	Poor	High
Fire	Moderate	Moderate	Poor	Moderate
Flood	High	Moderate	Poor	High
Major Accidents	Moderate	Low	Poor	Moderate
Pests	High	Moderate	Poor	High
Typhoon	Moderate	Moderate	Poor	Moderate

Source ADPC 1994, database, UNDP/DTCP 1994, *Cambodia Report on the DMTP Country Workshop*

2 6 Disaster Risk Assessment in China

The Hazards and Vulnerabilities in China China has experienced all forms of disasters, both man-made and natural, at one level or another, with the exception of volcanic eruptions Because of its vast territory and wide range of climatic conditions, it is one of the most disaster-prone countries in the world, with often extraordinary losses in life and property (Annex B) Average annual losses at present exceed US$11 5 billion, or 3 3 percent of the Gross National Product Chinese historians view the country's history as one of combating natural disasters

Although not the most frequent, flood is the highest risk hazard in China in terms of loss Since 1949 (the founding of the People's Republic of China) there have been an average of eight annual events, with the deaths of over 3,000 people and destruction of over 2 million housing units The flood of 1991 alone affected 320,000,000 million people and caused an estimated US$7 5 billion in losses

Drought, along with flood, has often curtailed the use of up to 20 percent of China's cropland The 1991 drought, the severest in years and followed by the worst flood in 70 years, overwhelmed the country's ability to respond, requiring international humanitarian assistance and relief

Earthquakes have historically taken tens of thousands of lives in China Although not considered as important as floods, single seismic events can create enormous destruction In 1556, 830,000 were killed in Shensi, with over 300,000 lives lost at Sichuan in October 1850 China, in one of many excellent examples of risks assessments completed recently, has estimated the loss from earthquakes in the next fifty years to be US$5 billion

Typhoons and their accompanying storm surges are the most destructive events along China's lengthy coastline Extensive industrialization along Chinese coast sustained a significant blow when Typhoon Fred shut down almost 90,000 factories Poor construction, haphazard zoning and vulnerable squatter shanty towns contributed to the vulnerability

Significant agricultural losses, primarily in wheat, fruit and livestock can occur from blizzards, snow storms, and cold weather As many as a million animals are lost annually to cold weather, with up to 4 million losses in some years

Other natural hazards include windstorms and tornados, coastal erosion and fire, both in rangeland and forests, pests to agriculture and forests, and epidemics among both livestock and human populations (Tables 2 1 and 2 7, Annex B)

China is a land of meager land resources and high population density Although industrial development and urbanization are relatively low, the most serious losses from disasters are experienced in urban areas Growing concerns emerging as the country experiences significant industrialization and continues urbanizing are for the technological hazards of fire, explosion, hazardous chemical releases and structural-related major accidents, and the environmental hazards of over-use of agricultural land and deforestation, coastal and river erosion, and air and water pollution

Disaster Management in China Following the economic recovery period of 1950-52, the Chinese government initiated natural disaster reduction efforts across the country in a more consolidated manner than in previous years That initial drive included massive reforestation projects and large-scale efforts to prevent and control crop and forest diseases and pests The China Meteorological Administration (originally the Central Meteorological Administration) was created along with the State Oceanic Administration and State Seismological Bureau From 1970 the government began setting up other departments and research institutes to establish mitigation practices for disasters in the fields of flood, drought, seismic hazards, geological disasters, agricultural and forest disasters Key organizations include

- Ministry of Water Conservancy and Power Generation,
- Ministry of Interior,
- Central Meteorological Administration,
- State Oceanic Administration, and
- State Seismological Bureau

China's efforts in natural disaster reduction have been consolidated into a number of local government agencies and central government organizations to conduct research on policy measures in disaster reduction, to expand disaster reduction planning and management, to enhance cooperation with international community and to strengthen public awareness and

education in disaster prevention and mitigation To do that, the China National Committee for the IDNDR (CNCIDNDR) was created in April 1989 It is by far the most active, powerful and resourceful of the IDNDR committees of the East Asia region The Committee consists of cadres from 27 ministries, commissions and administrations, including the five agencies noted above All activities related disaster prevention, mitigation and preparedness are considered to be coordinated by the CNCIDNDR The Committee is responsible for the following activities

- holding annual public awareness and education activities around the theme of disaster reduction, using mass media and mass public activities through various organizations and departments,
- publishing and disseminating ten different newsletters and journals on disaster reduction,
- organizing and coordinating the identification and discussion of disaster reduction strategies with relevant ministries and commissions at the provincial level and support those agencies in reduction activities,
- organizing and coordinating research activities in institutions, universities and colleges, and academic societies in disaster reduction, mitigation, preparedness activities
- participating in relief activities, organized international relief appeals and coordinated international relief operations relative to flooding,
- coordinating and organizing relevant academic exchanges and projects with relevant UN agencies, international organizations and countries (Since 1990, 21 seminars, workshops and conferences have been held in China through the Committee)

Relief is carried out by the central government The People's Liberation Army is the main force involved in evacuation, relief activities, resettlement of victims, provision of medical services, repairing and restoring infrastructure and lifelines, and in mitigation construction projects Supplies for relief are allocated among the provinces Humanitarian assistance from bilateral donors and foreign governments is requested and accepted when the immediate national capacity to respond is exceeded

China has conducted extensive hazard, vulnerability and risk assessment and mapping for natural disasters and has instituted the use of GIS, with remote sensed and field-collected data, into some of its disaster assessment and prediction areas of concern, most notably in flood forecasting and mitigation planning and in forest practices management

The country, through government funding, has instituted a number of risk reduction projects, currently including five hazard assessment projects, 11 for forecasting and prediction improvement, and over 20 projects in relief, preparedness, mitigation and prevention for an estimated total of US$17 billion Given the estimated US$10 billion in average annual losses to natural disasters, the return on this investment is expected to be fairly rapid

There is a national policy to cover China with trees, and an effort to prevent soil and stream bank erosion, siltation and sand storms March 12th is national tree planting day in the country After 40 years of effort, forests that once covered only six percent of China are up to 12 percent Two extensive weather breaks have been constructed a 7,000 kilometer long shelter belt through ten provinces in northern China and another that provides windbreaks against typhoons along the coast

The CNCIDNDR has noted that China's structure of land use determines that the country should not only strengthen key engineering projects against natural hazards in urban and industrial areas, but must also promote improvement in disaster-combating capability in rural and pasture areas Because of China's relatively high human population density throughout the country, the prioritization of urban or rural interests in disaster reduction effort cannot be done Efforts must be co-equal

China has been deemed "very far" advanced in the fields of disaster response, humanitarian assistance to its own people and in mitigation as far as knowledge, conceptual approach and activities are concerned [3] That disaster management strength is generally reflected in Table 2 7

Table 2.7. Assessment of Disaster Risks in China

	Hazard	Vulnerability	Management	Risk of Disaster
Cold Weather	Moderate	Low	Moderate	Moderate
Drought	High	High	Moderate	High
Earthquake	High	Moderate	Moderate	Moderate to High
Epidemics	Moderate	Low	Moderate	Moderate
Explosion	Low	Moderate	Moderate	Moderate
Fire	Moderate	Moderate	Moderate	Moderate
Flood	High	High	High	High
Landslides	Moderate	Low	Moderate	Moderate
Major Accidents	Moderate	Moderate	Moderate	Moderate
Pests	Moderate	Low	Moderate	Moderate
Typhoon	Moderate	High	Moderate	Moderate to High
Windstorms	Moderate	Low	Moderate	Moderate

Source CNCIDNDR, December 1993, *National Report of the People's Republic of China on National Disaster Reduction*, UNDP, 1994 *China Disaster Reduction Planning Humanitarian Assistance and Disaster Management*, ADPC 1994

[3] UNDRO, 1990, *Disaster Management Needs Assessment in China*, Geneva UN Disaster Relief Organization, pg 7

2 7 Disaster Risk Assessment in Laos

The Hazards and Vulnerabilities in the Lao Peoples Democratic Republic (Lao PDR) Flood and drought currently rank as the most significant hazards in Laos The importance of this dual threat was amplified in 1991, when a severe drought from May through July in that year was followed by heavy rains and lash flooding in August, following Typhoon Fred's passage through neighboring Vietnam Other hazards include civil conflict, fire, epidemic (including HIV/AIDS), strong wind or whirlwind, traffic accidents, and refugee or internally displaced persons All are considered to be moderate to low intensity events that create little disruption of the current social and economic status of a very poor country Because the vulnerable groups impacted are small and localized, the resultant event may be more properly defined as a local emergency rather than a disaster

The Mekong and its tributaries regularly flood lands often occupied for agricultural activities Through centuries of adaptation that flooding is accommodated by local custom that see any production from such flood-prone areas as a supplementary benefit to rice grown and harvested in other areas Rainfall of over 200 millimeters in a two-day period contributes to local flooding in the Mekong plain and most of the Lao PDR Housing elevated on stilts is used by rural dwellers to accommodate these seasonal floods Although the typhoons striking Vietnam have no direct affect on Laos, the resultant heavy rains do as was illustrated by Typhoon Fred, which was accompanied by significant local flooding Those inundations usually abate within a few days with little disruption of local community activity

Just as too much water may affect the country at times, so does the lack of that important resource When the annual rainfall of an area is less than 2000 millimeters, drought ensues It is drought, and localized famine, that has brought the most international humanitarian attention to Laos in recent years

Windstorms are often associated with the passage of the remnants of typhoons over Laos, but during April and May, localized intense winds may occur do to climatic changes No damage, injuries or loss of life statistics are given by the Lao PDR for such events

Fire in communities is common and recurrent A massive fire in March of 1993 razed 300 houses, shops and the central market in Sanakham, Vientiane, causing US$20,000,000 in damages Authorities could not control the blaze due to lack of a fire brigade or an adequate water system, both common problems to fire protection throughout Lao PDR

Civil conflict, often accompanied by displaced populations, is still a potential hazard A short, but fierce, war raged with Thailand in 1988, arising from a dispute over the actual border location between the two countries In addition, land mines may be an even more significant problem in Laos than they are in Cambodia The pro-democracy movement in Eastern Europe and collapse of the former Soviet Union encouraged rebels against the current government in 1991 to increase guerilla activity in the North Laos is also experiencing resettlement of repatriated Laotians for refugee camps in Thailand That process has been carried out relatively

smoothly by international NGOs, such as the International Rescue Committee, with a lack of available land being the major significant impediment to completing the process

Deforestation is occurring at a rapid rate, with a reported 300,000 hectares of natural forest being lost a year primarily to shifting agriculture Vietnamese loggers regularly exploit timber resources along that border Discussion with Vietnam to control the illegal expropriation currently goes unresolved The transport of rafts of sawn timber and raw logs across the Mekong into Thailand is commonplace Some authorities believe that the microclimatic changes caused by deforestation, lack of soil holding capacity and excessive run-off will exacerbate both floods and droughts in the country The issues surrounding deforestation and forest management and strategies for both are more fully addressed in the RSM/EA's sector report on the environment

Another potential source of environmental degradation and exposure of national vulnerability to hazards is the current interest by foreign companies, principally the US, Canada and Australia, in mining, especially for gold Unless adequate environmental controls are in place, increases in disaster risk may be expected from acid wastes, cyanide releases and additional land stripping and deforestation

Development in western Laos along the Mekong for and by Thai interests and in the northern due to Chinese influence has created a concern by international and Lao health authorities over increased rates of AIDs A recent study by AFRIMS and the Thai Community Development and Population Association revealed that prostitutes in some brothels across the border in Thailand's Chiang Rai province have 80 percent HIV-infection rates The same study showed that 20 percent of all male inductees from Thailand's northern provinces entering the Thai army are HIV positive Thus, significant concern is expressed in the cross border transmission of the disease (HIV/AIDS in Burma, Cambodia, Laos and Thailand, is not further discussed in this paper, but left to the Health Sector Report It stands, however, as a major concern of humanitarian assistance to all East Asia regional countries)

Population vulnerability in Laos will increase dramatically in the next few years, with a doubling of population in 24 years (at the current annual growth rate of 2 9 percent) A significant portion of that new population is expected to be rural and urban poor, those most often impacted by disasters and the least capable to deal with such events However, the total recorded loss from disasters over a 25-year period (1966-1991) in the Laos PDR is a modest US$32,080,000 [4]

Disaster Management in Laos Flood, representing the hazard of highest rank, is the joint responsibility of three agencies

- Ministry of Agriculture, Forestry, Irrigation and Cooperatives (MAFIC)
- Municipality of Vientiane
- Ministry of Transportation and Post

[4] OFDA, 1993, *Disaster History Report Country Laos*

There was an expectation that the typhoon committee of WMO, ESCAP and the Mekong Secretariat would provide technical and financial assistance to those three institutions However, given the current lack of donor support to the Mekong Committee, necessary support is doubtful Within MAFIC, the major agency dealing with floods is the Department of Technical Management, with its Divisions of Hydrology, Agrometeorology, Aeronautical and Meteorology, and a training center It is the responsibility of these units to carry out forecasting, warning, training, research and provide communication and coordination with other ministries, provinces and NGOs on water-related disaster activities

Non-structural measures have included flood mapping for Vientiane (1986), land-use zoning restricting development in flood-prone areas, and construction of houses on stilts 1 5 to 2 meters high Traditional housing in Laos, along with current development of areas for refugee returnees from camps in Thailand, utilize such elevated housing construction techniques The restriction of development in flood-prone areas has never been actively enforced

The current flood warning system was established by the Mekong Committee for the Lower Mekong River under a project funded by UNDP in 1970 Originally 20 recording stations were used in forecasting Today fewer than 13 are active, although the Department of Meteorology and Hydrology indicates it uses 17 meteorological stations Forecasts generated from data provided by those stations and others within the Mekong drainage basin are disseminated by the Mekong Committee to the National Committees in each country for action The weaknesses of the Committee is illustrated in its inability to effectively carry out this provision

Formerly disaster response was the responsibility of the Ministry of Agriculture but that has now been passed to the Ministry of Social Welfare (LMSW) When a disaster strikes an *ad hoc* committee of LMSW and relevant ministry representatives is set up LMSW is mandated to distribute necessary commodities, construct temporary shelters, establish temporary feeding programs, provide financial assistance to cover replacement costs, provide traveler's aid and transportation costs for evacuation and rescue

In the most recent flooding of the Mekong in 1994, the government never did get an effective program going, citing lack of money and resources No needs assessment was conducted, as there is no method for accurate data collection within relevant ministries Data are considered by NGOs as unreliable and most likely fabricated for the benefit of participating departments in obtaining international relief and donations There was no demonstrated mechanism for coordination or assistance Actual response to the flood of 1994 and those in most recent years has been carried out at the local level by communities and NGOs

A Disaster Preparedness Awareness Raising Seminar, sponsored by the Lao Red Cross and the IFRC Delegation and conducted 11-12 October 1994 in Vientiane, focused on human resource development and institutional strengthening in disaster management Attended by UN agencies, NGOs, Lao PDR government officials and Lao Red Cross members from across the country, the seminar was considered a success in that it brought the relevant disaster response agencies together, some for the first time But it is seen as only an initial step in sustained awareness The UNDP Resident Representative is viewed by NGOs and donors as the key official, through

the UN DMT, in provoking a sustained awareness for response, relief and inculcation of prevention, mitigation and preparedness into development activities in the Lao Peoples Democratic Republic

Although some authorities (primarily NGOs and donors) suggest that the risk of all disasters potentially affecting Laos is moderate, others (especially in government) identify flood and drought as high risk The more conservative approach has been taken in Table 2 8, with the caveat that risk assessment must be repeated often as economic and social development and needs within the country change

Issues that stand in the way of sustained and adequate disaster management in Laos have been identified by the government, NGOs and foreign observers and include the following

- Government commitment for pro-active participation in disaster management is lacking Flooding and other events are seen as methods to increase foreign aid Recent observers note that Lao's dependance on foreign assistance is not likely to be sustained, especially when little tangible benefit is seen in money spent

- Although some Russian and French is spoken by officials, few have good communication skills in English, the international language of commerce and trade This limitation inhibits international exchange of expertise in disaster management, including attendance in disaster management courses such as those conducted at ADPC

- The level of corruption within the government has provoked the Prime Minister to publicly state that it is "causing a loss of faith in the party and the government "

- Officials often feel responsible only to themselves and their immediate families and friends They tend to be unconcerned about their responsibilities to other communities, the nation as a whole, and the environment The movement of illegal logs from Cambodia through Laos with the consent of Lao officials for delivery to in Thailand, effectively circumventing the UN ban on such direct trade between Cambodia and Thailand, is well known to the NGO community in Laos and illustrates the level of corruption and lack of responsibility in the national interest

- Laos is a country of isolated communities, with a lack access by roads and telecommunications This is a major impediment to effective disaster response, leaving vulnerable communities to fend for themselves, as has been the case for centuries The Lao PDR indicates that 50 percent of all road construction is funded by the government Current foreign aid initiatives also focus on road improvement, accounting for the other half, as well as for support for improvements in telephone and microwave relay projects

Table 2 8 Assessment of Disaster Risks in Laos

	Hazard	Vulnerability	Management	Risk of Disaster
Civil Unrest	Moderate	Low	Poor	Moderate
Deforestation	Moderate	Low	Poor	Moderate
Drought	High	Low	Moderate	Moderate
Epidemics	Moderate	Moderate	Moderate	Moderate
Famine	Low	Low	Moderate	Low
Fire	Moderate	Low	Poor	Moderate
Flood	High	Moderate	Moderate	Moderate
Traffic Accidents	Low	Low	Poor	Low
Refugee Influx	Low	Low	Poor	Moderate

Source LRC, 1994, *Disaster Preparedness Awareness Raising Seminar*, IFRC, 1994 *personal communication,* , ADPC, 1994, database, UNDP/Laos, 1994 personal communication

2 8 Disaster Risk Assessment in Mongolia

The Hazards and Vulnerabilities in Mongolia Mongolia, a country of high geographic relief, with hills, high denuded plains and mountains, is sparsely populated with over half of its small population living in Ulaanbaatar or one of the three other major cities Climate is the overriding factor affecting the social structure, economy and types of hazards of the country Exposure to cold weather is a common hazard and the nation experiences only 100-130 frost free days a year With a large separation from the moderating influences of oceans, its climate is harsh There is a strong suggestion from historic meteorological data that Mongolian climate is becoming drier and even more forbidding Most of the major hazards are associated with the extremes in climate blizzards, heavy snow, and desertification having the largest impact on the country, with drought and flood of somewhat lesser concern The full list of hazards for Mongolia, shown above in Table 2 1, may occur in any part of the country with the exception of the industrial hazards including air pollution, water pollution and major accidents, which are localized in urban and industrial areas

Blizzards and snow storms may occur in Mongolia a full nine months of the year, between September and May The term "zud" is used by Mongolians to describe the loss of livestock due to the inaccessibility of pasture to the animals due to deep snows, very cold weather and/or high winds Some "zuds" have affected as much as 50 percent of the area of the country, those of 1963-1964, 1966-1967, 1967-1968, 1987-1988, 1992-1993 being the most recent In the zud of 1967-1968, 2,000,000 head of livestock were lost

A new class of disaster has been identified in Mongolia related to cold weather heating system failure With a majority of Mongolians living in urban areas where significant heat is supplied

by central facilities, integrity of those energy producing systems and their fuel supplies becomes crucial The poor condition of a majority of energy-producing facilities in Mongolia and the fragility of the supply system for fuel to those systems place the country in a particularly vulnerable position during times of extreme cold weather

Along with cold weather, erratic rainfall also contributes to the vulnerability of Mongolia Almost 90 percent of the country is pasture (range) or desert wasteland Efforts have been made to increase grain and hay production by putting more virgin land under harvest That over-use by cropping and grazing, the reduced rainfall of the area and attendant winds are all contributing to soil erosion and desertification Dust storms are associated primarily with the Gobi desert, with as many as 125 events a year A noted increase in the number of dust storms has been associated with increased desertification The resultant drought is most noticed in the south central and western half of the country During the droughts of 1988, 1989 and 1991, 300,000-400,000 head of livestock were lost and vegetative growth reduced by half during each event

Flood in Mongolia comes in three forms rain water, snow melt and flash flood from storm bursts Data on floods, particularly flash floods, is scarce due to the low density of people in flood-prone areas Infrequent floods in the Tuul River that flows through Ulaanbaatar are the most damaging

Mongolia is one of the most seismically active countries in the world, with over ten earthquakes of 6 5 or higher intensity (Richter scale) recorded this century Damage from earthquakes has been low due to the low population and type of rural housing used The traditional house (*ger*) is quite resistant to damage from earthquakes of low to moderate intensity Increasing concern is, however, now being expressed by the government over industrial development and its vulnerability to the devastating effects of earthquakes

Timber and range fires are also major hazards to the Mongolian people An estimated 3 million hectares of range and timber land have been destroyed due to fire in the past 15 years, 90 percent of those fires being caused by human activity

Agriculture is the life-blood of the country, with livestock breeding being the single major sub-activity Climate extremes can result in 30 percent loss of crops in some years Cold weather is the major cause of death of livestock in winter and spring, due to a shortage of fodder and poor condition of animals

Industrialization of Mongolia began during the Soviet Era, with establishment of light industry and power generation facilities Attendant with those, other energy and heat production, has been a marked localized increase in air pollution from coal and animal dung used as fuel That air pollution can at times be severe Over half of the population in this sparsely-settled country live in the major cities, placing a significant portion of the population at risk to not only air pollution but the other attendant hazards of industrialization and urbanization water pollution, hazardous materials releases, fires and explosions and major accidents

The increase in poverty (both an in the form of an initial poor population and an increasing poor due to the current economic deterioration) places the country at a particularly critical juncture Increased unemployment and crime rates, along with a deteriorating environment, set Mongolia at significant risk of social deterioration

Disaster Management in Mongolia The Government of Mongolia has accepted the responsibility of all activities related to humanitarian assistance and disaster reduction, including planning and implementation of prevention and mitigation In 1990, the State Permanent Emergency Commission (SPEC) was established in order to co-ordinate activities among government agencies Activities include preparation of a National Disaster and Calamities Preparedness Plan, coordination of relief activities down to the local government level, organization of reconstruction and rehabilitation measures, and disaster mitigation activities There is a branch in each province and large cities Through SPEC measures to combat natural disasters are organized by the following organizations

- Civil Defense Board Duties include dissemination of information on natural disaster, including warning and alarms, civil defence education and training, mobilization of all civil defense facilities when disaster occurs and other related relief measures The majority of the 70 members of Civil Defense serve as reservists, with a full time staff of about 20 people Actual response coordination is carried out by District Civil Defense authorities, under supervision of the national office

- Ministry of Nature and Environment Performs data collection relative to natural hazards and disasters, provides warning, forecasting and operational information to affected communities The Science, Monitoring and International Cooperation Department (SMICD) of this Ministry is the focal point and country secretariat for the IDNDR It maintains assessments of hazards in Mongolia, propose long-term policy and mitigation plans, including those for preparedness and community awareness activities, maintain access to global warning systems and promotes international cooperation

- Ministry of Health Provides medical equipment and supplies and organizes emergency medical service and aid

- Ministry of Food and Agriculture Responsible for maintaining food resources for use during times of emergency

- Others as assigned by SPEC These include Ministry of Fuel and Energy, Ministry of Construction, Ministry of Road, Transportation and Communication and Ministry of Finance

Mongolia has extremely limited resources to combat disasters and implement threat reduction strategies Of the very modest US$572,000 spent by the government for natural disaster reduction in 1993, 53 percent went to telecommunication systems for hydrometeorological data transmission and 36 percent for reforestation The remaining 11 percent was used to combat

desertification, fight fires, do earthquake studies, flood protection and land rehabilitation Because of those very limited resources, the government has a weak capability to coordinate disaster management programs at the local level, let alone cooperate with international organizations and foreign countries in humanitarian assistance and disaster reduction

Current non-structural mitigation efforts include land-use planning, water and forest management, building codes, and public awareness All of the activities, however, are noted as ineffective and insufficient due to inadequate resources in trained personnel, equipment and finances

Management of the limited available water resource in Mongolia is recognized by the government as a critical need, current usage is three times what it was a decade ago Some policies include desalination of salted water, water pricing, reuse and recirculation of water, separation of drinking and industrial water and reforestation of drainage basins

Hazard mapping, a requisite to effective disaster management, has been initiated by SPEC and SMICD Initial attempts for blizzard mapping were found to be imperfect and impractical due to the over-all occurrence of such storms throughout the country Earthquake, fire, dust storm and desertification mapping has been completed on a cursory basis

Mongolia has no effective measures to combat blizzard and snow storms, the country's most serious hazards The government recognizes that any efforts must be focused on protecting vulnerable populations and assets through adequate housing, restricted populations at risk, and sufficient energy and food supplies Shelter, heating and energy supplies are therefore critical Central heating and power systems in urban areas are suffering from accidents, increasing inefficiencies and coal shortages Previous USAID assessments have noted that these facilities are "dangerously vulnerable to failure "[5] Most at risk is the city of Ulaanbaatar due to its population density, the extreme vulnerability of its lifelines and other infrastructure, and the potential for serious industrial accidents

Mongolia's transport system remains seriously inadequate, with a lack of good roads and telecommunications systems Much rural travel is still done by horse Air travel is the only effective means of getting in and out of the country quickly However, there is a relatively effective postal service and a large percentage of Mongolians are served by telephone

Although warnings and alarms for all types of natural hazards are broadcast, not all families have televisions or radios or the power to run them Measures for public awareness during intervening times between disasters are virtually non-existent There are no books or brochures on specific hazards and how to combat them A general inadequacy of education and training of government officials and others involved in disaster reduction and response is noted Current financial difficulties prohibit any local training, let alone opportunities to send people for

[5] Brennan *et al*, 1994, *Findings and Recommendations for the 1994-1995 Heating Season Energy Crisis in Mongolia Preparedness and Response Strategies*, Manila USAID

regional or international training Lack of English proficiency (Russian being the major second language) restricts participation in regional and international training opportunities

Fire protection is provided by the Mongolian Fire Protection and Aerial Patrol Service, who put out from 190 to 250 fires each year An estimated 90 percent of the fires are responded to by smoke jumpers A fire danger rating system is in effect, based on temperature, humidity, wind and fuel moisture A USDA Forest Service smoke jumper specialist team who reviewed Mongolian fire fighting rated the service as "very positive "

Structural mitigation for flood is limited to flood protection dams for Ulaanbaatar, Darhan and other cities There is some protective structures for flash flood, but these are considered as minimal and ineffective

The government has adopted, in its view, a strong general policy for the protection of the environment and enhancement of the use of natural resources The Ministry of Environmental Protection was formed in 1987 and has also increased publicity on environmental issues The status of the environment in Mongolia and efforts to sustain it are more thoroughly covered in the Environmental Sector Report That management as well as all efforts for humanitarian assistance, the intensity of hazards and the vulnerabilities to them are summarized in Table 2 9 This assessment, which reveals an inadequate level of management, points to a sparsely-settled country with an inordinately moderate to high risk of disaster

Table 2 9 Assessment of Disaster Risks in Mongolia

	Hazard	Vulnerability	Management	Risk of Disaster
Blizzard and snow	High	High	Poor	High
Decertification	High	Moderate	Poor	High
Drought	Moderate	Moderate	Poor	Moderate
Dust storm	High	Low	Poor	High
Earthquake	High	Low	Poor	Moderate
Pollution	Moderate	Low	Poor	Moderate
Epidemics	Moderate	Moderate	Moderate	Moderate
Fire	High	Low	Moderate	Moderate
Flood	Moderate	Low	Moderate	Moderate
Pests	Moderate	Low	Poor	Moderate

Source Govt of Mongolia, 1993 IDNDR Mid-Term review Detailed Report Mongolia, ADPC database, 1994

2 9 Disaster Risk Assessment in Thailand

The Hazards and Vulnerabilities in Thailand Until recently Thailand was not seen as a country prone to disaster An occasional typhoon, with accompanying heavy rains and storm surges, separated by several years, would strike in southern Thailand Drought has occurred at some level repeatedly in the Northeast However, the Kingdom has experienced enormous economic growth in the past ten years, with a resultant increase in vulnerable economic assets factories, infrastructure and business support facilities, and the work force to support them A shift from an agrarian to urban society has taken place and Bangkok now one of the world's megacities, with a population of over 10 million people Following recent technological catastrophes of fire, explosion and major accidents, international attention has been drawn the country The Klong Toey fire of 1991, the Kader Doll Factory fire of 1993 and the Royal Plaza Hotel collapse in 1993 emphasized to the world and to the Royal Thai Government that the recent rapid economic expansion may have undesirable side-effects

At the request of the Royal Thai Government, UNDP commissioned a study to elicit ways to strengthen disaster management in the country A necessary prerequisite of that study was a risk assessment of the hazards and vulnerabilities, as well as the level of management over them The results of that assessment, shown in Table 2 10, indicate flood, explosion and major accidents as the most serious hazards to the Kingdom The hazards affecting the most susceptible vulnerabilities are drought, explosion, fire, flood, major accidents and typhoon

Disaster Management in Thailand The legal basis and organizational structure of disaster and crisis management in Thailand is extremely complex There are identified 34 laws in 9 ministries, 20 departments and ten committees related to disaster response and reduction

The Civil Defense Act of 1979 is the primary legal basis for national disaster management structure [6] It, however, is a secret plan since it includes issues of national security (air attack and sabotage) The Act provides for a National Civil Defense Committee (NCDC), a National Civil Defense Plan and a Civil Defense Secretariat The Minister of Interior is the Director of Civil Defense and Chairman of the NCDC Although the Ministry of Interior Division of Civil Defense indicate they coordinate prevention, mitigation and preparedness activities as well, that in reality, does not occur

[6] Other related Laws include 1) Hazardous Substance Act of 1992 2) Toxic Substance Act of 1967 - although revoked is still in effect where it does not conflict with the Hazardous Substance Act 3) Declaration of the Revolutionary Council 28th Declaration, 1971 4) Fuel Storage Act of 1931 - currently being revised, 5) Fuel Oil Act of 1978 6) Emergency Decree on Improvement and Prevention of Fuel Oil Shortages 1973, 7) Petroleum Act of 1971 8) Atomic Energy for Peace Act of 1971 9) Protection of the International Nuclear Energy Bureau Operations in Thailand Act of 1972 10) Firearms Explosives and Fireworks Act of 1947 11) Order of the Reform Council (37th edition) 1976, 12) and Firearms Factory and Armament Control Act of 1987, 13) Fire Prevention and Suppression Act of 1952, 14) Land Traffic Act of 1979, Land Transport Act of 1977, Railway and Highway Act of 1921, 15) Thai Territorial Waters Navigation Act of 1913 and Air (Transport) Act of 1954, 16) Public Health Act of 1992 17) Food Act of 1979 18) Medicine Act of 1967, 19) Emergency Decree on Prevention of Use of Inhalation Substances 1990, 20) Hallucinatory Substances Act of 1975, 21) Infectious Disease Act of 1980, 22) Animal Disease Act of 1982, 23) Animal Epidemic Act of 1956 24) Factory Act of 1975, 25) City Plan Act of 1975 26) Building Control Act of 1979, 27) National Environmental Quality Act of 1992 28) Prevention of Dangers from Entertainment Areas Act of 1921 29) Emergency Management Act 1952, and 30) National Intelligence Act of 1985

The principle ministries identified for disaster response and reduction in the Kingdom to carry out and enforce these laws are the Ministry of Defense, Prime Minister's Office, Ministry of Interior, Ministry of Agriculture and Cooperatives, Ministry of Labor and Public Welfare, Ministry of Science, Technology and Environment, Ministry of Public Health and Ministry of Industry

Ten national committees are recognized, with varying responsibilities for disaster management, including the NCDC The Prime Minister chairs three others the National Security Council, the National Accident Prevention Committee (also referred to as the National Safety Council) and the National Environmental Board Other disaster-related committees include the National Preparedness Committee, the Environmental Fund Committee, Hazardous Substance Committee, Pollution Control Committee, Oil Spill and Eradication Committee and the National Earthquake Committee

Emergency plans are developed under the Civil Defense Act but are poorly designed Furthermore, when crisis does occur, relief is implemented and carried out, usually by the Department of Social Welfare and the Thai Red Cross The Thais usually get by without calling for international assistance

A provincial three-tiered emergency plan for technological hazards has recently been instituted in Rayong Province, home to one of the county's largest hazardous chemicals industrial estates The plan was successfully practiced for the first time in July 1994 and serves as an excellent example of cooperation between industry, provincial and national governments and local people

Difficulties to the satisfactory prevention of hazards, mitigation of vulnerabilities and the preparedness for and response to disasters in Thailand has been well addressed [7] These difficulties have been candidly and openly identified and discussed by senior Thai officials

- Little or no coordination and cooperation between ministries, department, committees and NGOs, with over-lapping responsibilities and mandates Instead, a decided attitude of territorialism exists, in which each is vying for power, authority and money to expand and enhance operations and interests

- Failure to enforce rules, regulations and management strategies, amplified by a disregard for building and safety rules and regulations that have contributed to a disastrous hotel collapse and numerous fires in the Kingdom,

- Failure to obey rules regulations and strategies, due to a fundamental lack of concern about the national interest,

[7] Through a review of disaster management in the Kingdom sponsored by UNDP under THA/88/004 and entitled *Strengthening Disaster Management Strategies in Thailand*, and a UNDP/DHA-sponsored DMTP country workshop Both initiatives were completed in 1994

- Widespread corruption caps that makes it all too easy to pay off officials Developers find it economically advantageous to build without permission or completed environmental impact assessments and pay whatever punitive costs come later

- Inappropriate or inadequate resources, including trained personnel and money There are large financial reserves in Thailand, but much of that is focussed on activities that do not inculcate safety and prevention, mitigation and preparedness strategies

It must at once be said it is to the credit of the Thais themselves that these problems are identified by them and it is only the Thais who can affect solutions

Table 2 10 Assessment of Disaster Risks in Thailand

	Hazard	Vulnerability	Management	Risk of Disaster
Civil Unrest	Low	Low	Poor	Moderate
Drought	High	Moderate	Moderate	Moderate
Earthquake	Low	Low	Moderate	Moderate
Epidemics	Low	Low	Moderate	Moderate
Explosion	High	Moderate	Poor	Moderate
Fire	High	Moderate	Moderate	Moderate
Flood	High	Moderate	Moderate	High
Landslides	Moderate	Low	Poor	Moderate
Major Accidents	High	Moderate	Poor	Moderate
Pests	Moderate	Low	Poor	Moderate
Refugee Influx	Moderate	Low	Moderate	Moderate
Typhoon	High	High	Moderate	Moderate

Source UNDP, 1994, *Strengthening Disaster Management Strategies in Thailand*

2 10 Disaster Risk Assessment in Vietnam

The Hazards and Vulnerabilities in Vietnam Vietnam has some of the most abundant water resources in the world, with an average annual rainfall of 1 8 to 2 5 meters of rainfall a year However, that very abundance and the country's location in relation to the prevailing monsoon make water resource-related hazards the most serious threats in the country With a number of broad river deltas (including the Red River and Thai Binh River systems in the North and the Mekong Delta in the South) and a narrow lowland zone along 3,000 kilometers of coast, floods from typhoons storms and uneven rainfall are common

The majority of the country's over 70 million people live in areas subject to flood, with 62 percent of the population and 44 percent of the country being affected by storm events Over many years rice has been exploited as the main agricultural crop to the point that 70 percent of all Vietnamese gain their livelihood from the production of rice It is these rice-growing areas that are most prone to flooding Because of the annual floods, most of the rice-growing is limited to one crop a year, instead of two or three in flood-free zones As the world's third largest exporter of rice, the economic effect of flood in Vietnam is significant and often dramatic Shortages are expected due to the extreme flood conditions of 1994

In this century the Red and Thai Binh River systems have had 26 major floods, the worst in 1971, with croplands inundated with five to ten meters of water In 1986, during the fifth highest flow in the Red River this century, a large section of the dike failed and hundreds of hectares were flooded, with thousands of persons affected The Mekong Delta is internationally known for its annual floods, with the those in 1984 and 1991 the most severe in recent times Even out of the delta areas, localized rainfall is extremely high resulting in floods that persist for two to four days after rains stop

Some social adaptation to annual flooding has been made by farmers in the Red River flood way If provided with adequate warning, they harvest crops quickly, store them above flood levels and evacuate out of the flooded areas to squatter camps and tents on public lands, to return once flood waters abate However, flood warnings are not always timely enough for effective action and losses are incurred

The 3,000 kilometer coast line of Vietnam exposes the entire country to the prevailing westerly tacking of typhoons originating in the South China Sea Since 1954, 212 typhoons have struck Vietnam Although rare in the South, typhoons striking between May and December take a heavy toll in lives and assets in the Central and Northern regions The accompanying storm surges, funnelled into river deltas, exacerbate flooding from heavy rainfall A single typhoon in 1985 was responsible for 900 deaths and left 213,000 homeless Some authorities anticipate that the severity and frequency of heavy storms and typhoons to strike Vietnam will increase due to climate change associated with global warming

Forests that covered 44 percent of the country in 1945 have dwindled to 28 percent today Although Vietnam claims active reforestation projects, over 100,000 hectares of additional forest area is lost each year Land erosion, faster run-off and lower flows in the dry seasons due to reduced soil infiltration of rains all impact local and down-stream activities It also erosion adds to sediments that clog necessary flood run-off channels Deforestation also contributes to slope instability, mudflows and landslides

Just as forest cover in hills and mountains is being removed due to logging and shifting agricultural activities, protective coastal mangroves have been destroyed to facilitate shrimp and sea crop farming There are currently over 530,000 hectares of sea crop farms, of which half are devoted to shrimp raising Coastal settlements are now exposed more directly to wave action, storms and typhoons

The rapid economic and technological reforms currently taking place in Vietnam as the country moves from a central to a market-oriented economy are creating additional vulnerabilities through industrialization and urbanization That development and a growing population put significant pressure on an already strained resource base Besides the need for forest and watershed management, other environmental considerations, such as water and air pollution abatement and solid and hazardous materials management, are imperative in the face of the rapid development process in Vietnam

Disaster Management in Vietnam Flood-related activities are coordinated by the Central Committee of Storm and Flood Control (CSFCC), which operates under the guidance of a Council of Ministers of the central government The 17 members of the CSFCC are drawn from relevant ministries The committee, chaired by the Minister of Water Resources formulates all regulations and mitigation measures related to flood and typhoon There is a special emphasis on dike protection, surveillance and maintenance Local emergency work is also coordinated under the provincial CSFCC's, but that task is difficult as communication links are often broken during times of crisis

The National Committee for IDNDR of Vietnam (VNCIDNDR), established in 1991, is also chaired by the Minister of Water Resources While the representation on the CSFCC is at the ministerial level, that on the VNCIDNDR is vice-ministerial The latter also includes representation by the National Center of Natural Science, Union of the Science and Technology Organizations of Vietnam and the Red Cross and Red Crescent Societies of Vietnam

The most recent and important law regarding flood protection is the Statute of Flood and Typhoon Mitigation of 1993, which establishes responsibilities and powers of the Department of Dike Management and Flood Control (DDMFC) and the Provincial and District Water Resource Services The statute empowers relevant officials to take necessary steps in preparation activities, but is less effective in mitigation and relief DDMFC publicizes information on disasters, issues alarms and warnings to relevant agencies and the media

A Flood and Storm Preparedness Fund was established in 1993 which draws on local community resources Over 94 percent of all provinces and cities contribute to the fund, which is used to support relief and recovery activities Other government agencies involved directly in disaster management are

- General Department of Hydrology (weather forecasting),
- Ministry of Foreign Affairs (issues appeal for international relief),
- Office of the Government (final decision on appeal for international assistance and approves budget for emergency relief),
- State Planning Committee (aid coordination, proposes emergency relief policy),
- AIDRECEP (Distribution of relief assistance), and
- Ministry of Health (supply curative and preventive medical measures in disaster struck areas)

Several workshop and training sessions dealing with disaster-related topics, sponsored and conducted by such agencies as Safe the Children Fund-UK, ADPC, VNCIDNDR, AIT and the Commission of European Communities, have been held in Vietnam in recent years A document entitled *Information Note on Emergencies Relief and Disaster Mitigation in Viet Nam*, has also been produced through a joint effort of the Vietnamese and UN DMT This publication, aimed at UN agency organization professionals and their government counterparts, provides current information on emergency relief and disaster management in the country

Structural measures have been used in Vietnam for over a 1,000 years to mitigate the effects of flooding Dikes were the original and still are the primary form of protection against inundation Flood control reservoirs, groins, channel improvement and pumping are also used, along with upstream surge reservoirs, diversion of flood waters and river channel clearing Non-structural measures for flood reduction and protection in Vietnam include forecasting, warning, storm surge prediction, evacuation and relief Land-use planning has also been used, but on a limited basis Population growth pressures have prompted unauthorized settlement in flood prone areas and enforcement of ordinances to restrict such settlement are not actively carried out

The administration of irrigation and flood control are largely separate and there have been instances where the installation of one system adversely affects the other As an example of this conflict between multipurpose benefits, irrigation structures sometimes interrupt the flow of sediment down a water way and lead to erosion of banks or the undermining of dikes Dikes constructed to prevent flooding with higher levels of water on the channel side, permit subsurface water-logging of agricultural land on the protected side, making those lands unproductive and difficult to use

Despite Vietnam's belief that it has one of the most effective systems in the world to mitigate water-related disasters, with a range of structural and non-structural flood-control measures in place, almost a million cubic meters of dike are destroyed or washed away, millions of dollars and hundreds of lives are lost, and thousands of persons are displaced each year UNDP has estimated the annual losses from floods in the North at $130 million a year The ADB, in a more rigorous analysis, estimates $50 million in losses annually in and around Hanoi due to flooding Although the usual measure of flood loss is measured in lost rice production, families suffer loss of homes, possessions and work opportunity Those losses are not factored into reported estimates of flood damage

Disaster management efforts in Vietnam are focused on relief, some preparedness measures and structural mitigation Neither the CCFSC nor the VNCIDNDR have units of staff specialized in the complete and complex issues of disaster management as a whole It is apparent that regardless of the government's perception of disaster management in Vietnam, that management is not as satisfactory as most Vietnamese would wish

The risk from all forms of hazards in Vietnam, along with their attendant vulnerabilities, are shown in Table 2 11 along with the level of management currently exercised in Vietnam to reduce disaster impact Those assessments yield an estimate of the risk of each disaster type Immediately noted is the high risk of flood and typhoons These events cannot be prevented

Preparedness and mitigation measures are, therefore, the most effective strategies to reduce the impact of these inevitable events and should be mandatory and implicit in any capital investment or economic opportunity in Vietnam

Table 2 11 Assessment of Disaster Risks in Vietnam

	Hazard	Vulnerability	Management	Risk of Disaster
Cold weather	Low	Low	Moderate	Low
Deforestation	High	Low	Moderate	Moderate
Drought	Moderate	Low	Moderate	Moderate
Earthquake	Low	Low	Poor	Moderate
Epidemics	High	Low	Moderate	Moderate
Fire	Moderate	Moderate	Moderate	Moderate
Flood	High	High	Moderate	High
Landslides	Moderate	Low	Poor	Moderate
Major Accidents	Low	Moderate	Poor	Moderate
Pests	Moderate	Low	Moderate	Moderate
Refugee Influx	Moderate	Low	Moderate	Moderate
Tornado	High	Low	Poor	Moderate
Typhoon	High	High	Moderate	High

Source, VNCIDNDR, 1994, *National Report for the IDNDR Mid-Term Review*, UNDP, 1994, *Emergency Relief and Disaster Mitigation in Vietnam*

SECTION 3

HUMANITARIAN ASSISTANCE NEEDS IN EAST ASIA

3 1 Introduction

The East Asia region represents the poorest and the richest of countries, those least able to assist themselves in time of crisis and those most capable Even within the seven nations of interest, the same extreme range of economic stability and ability is seen Thailand is capable of developing and sustaining effective disaster management without international funding, although assistance in technology and improving skills is needed The Kingdom can also afford to train its personnel China, Mongolia and Vietnam have essentially sound disaster management programs, especially in response and relief, arising from the sense of community responsibility and obedience instilled during years of Communist indoctrination However, they lack the technical or financial resources to see capacities progress further Burma, Cambodia and Laos are in the infancy of sustained disaster management, with fragmented, uncoordinated efforts, often completely lacking in financial and human resources Of the three Cambodia faces the most critical challenge

USAID is America's primary provider of emergency relief overseas Since the risk reduction strategies of prevention, mitigation and preparedness are necessary components of sustainable development, USAID has a vital interest in strengthening humanitarian assistance and disaster reduction programs in the world, especially as those programs reduce human suffering, promote rapid recovery after crisis events, and encourage democracies

ADPC has used several sources of recommendations to assist USAID in developing strategies for humanitarian assistance and disaster reduction in the East Asia region Needs for Cambodia, China, Thailand and Vietnam have been based in a large part on recommendations for disaster management strengthening arising from DMTP Country Workshops Such recommendations are particularly important as they often address needs identified jointly by the respective governments, UN agencies, NGOs and bilateral donors

Other recommendations have come from country-specific USAID strategies and missions, while others are the result of missions for UNDP, DHA and various NGOs The full text of the more important sets of recommendations are shown in Annex C ADPC has reviewed these recommendations in context with its own knowledge of the region and countries and an analysis of disaster risk, institutional structures, strengths and capacities outlined in Section 2

Needs are presented below in priority order Funding sources are identified as 1) those that can be met by the country 2) those that can be met by multilateral donors, and 3) those that can be met by bilateral donors and NGOs In most cases, funding sources are linked to specific needs The degree of risk associated with providing needed assistance, (e g level of government support, institutional capability, the risk/reward pay-off etc) is also discussed The level of effort made by ADPC in identifying needs and making recommendations is consistent with the likelihood of USAID funding and in light of current operational mandates

3.2 Humanitarian Assistance and Disaster Reduction Needs of Burma

Because of its relatively low population density, cultural and societal adaptations to centuries of living with nature and the modest severity of most hazards, Burma enjoys relative freedom from the damaging effects of natural events Fires in communities and environmental degradation, both the result of human activity, represent the two hazards of growing concern in the country Most recent efforts to improve humanitarian assistance and disaster reduction in Burma are applaudable But they are very new, untested and in need of international support to encourage their success in effective implementation

Priority Need 1 Enhance coordination, community involvement and awareness Ninety percent of all response activities in Burma originate at the local level Burmese adaptations to crises also emphasizes this approach There is an immediate need to build on recent government initiatives to enhance humanitarian assistance and disaster education efforts by introducing more community-based approaches to disaster management and move from a reactive to a proactive strategy Although national response networks are well established, they are quite new (since 1990) and centralized Devolution of responsibility and training at the local level will enhance effectiveness of immediate response, community resilience and ability to recover for crisis quickly Duration on-going beyond the five-year time frame of the RSM/EA Strategic Plan

a) Coordinate the UN DMT and the Burmese Disaster Management Committee (BDMC) Both the BDMC and UN DMT are encouraged to increase their cooperation through regular meetings and exercises, with a focus on how best to respond to local needs in the most effective and timely manner

Sources of funding	direct government support for the BDMC, UNDP and affiliate agencies support for the UN DMT
Performance indicators	1) monthly or regular meetings on disaster issues, 2) measurable improvement in policy and procedures for response at the local level, and 3) creation of checklists for local contacts, protocols and procedures at time of crisis

b) Develop needs assessment capability This is required of both BDMC and UN DMT in order to respond with essential supplies and personnel Accurate data are required for international donor support at the time of a disaster Collection of such data assure that staff are in the field and in contact with victims and survivors Essential staff must be adequately trained in immediate needs assessment procedures

Source of funding	USAID or other bilateral donors
Performance indicators	1) completion of in-country or external training of key staff in needs assessment, and 2) regular exercises in needs assessment

c) Expand training at the local level The goal of the training would be to promote timely and effective response BDMC and the Burmese Red Cross (BRC) are perhaps the most effective means of providing that local training However, their curriculum, materials and methods may need to be improved to be more effective ADPC has a capability in assisting regional countries in that development both in-country and through programs conducted in Bangkok, and could be an advantageous partner to this training effort

Potential funding	IFRC, other NGOs, USAID and other bilateral donors, UNDP
Performance indicators	1) completion a finite number of training courses at the local level annually, 2) initiation of, and results from, performance evaluations by agency observers and course participants, and 3) certificates of training from ADPC

Priority Need 2 Improve response capacity Enhancement of technical expertise in modern techniques of response and replacement of antiquated, inadequate and non-existent equipment is required in Burma Effective methods and mechanisms to warn the public of impending hazards, including dissemination to the public is also required

a) Improve fire fighting equipment Fires are the number one hazard in Burma Many communities, regardless of size or density, suffer from such events regularly and must respond at the local level with often inadequate resources

Sources of funding	NGOs and bilateral donors, such as USAID
Performance indicators	1) increased number of fire fighting vehicles, 2) increased capacity of municipal water systems for fire fighting, 3) larger inventories of essential fire personnel equipment, and 4) measurable improvements in local communications equipment

b) Enhance the storm surge and typhoon warnings capacity of the Department of Meteorology and Hydrology This should include increasing its capability to monitor storms, disseminate information, and its ability to educate the public about the need for disaster preparedness

Sources of funding	WMO, UNDP, USAID and other bilateral donors, as well as multilateral donors
Performance indicators	1) measurable increases in storm warning capability, 2) improved communication systems, 3) the number of public awareness campaigns for preparedness, and 4) published public evaluation of warning systems

Priority Need 3 Encourage sustainable development and yield Protection of natural resources and promoting sustainable urban and rural development are necessary components of an economic growth strategy in Burma The incumbent government has a stated policy of enhancing sustainable growth, but it requires external assistance for its realization Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Continue programs of biodiversity protection and enhancement Priority should be given to re-orienting aid to the forestry sector to focus on sustainable yield Protection of forest reserves and expansion of new forest cover have provided dramatic improvement in flood and landslide protection International aid has been identified as playing a major role in biodiversity protection in Burma and should be encouraged

Sources of funding	bilateral and multilateral donors
Performance indicators	1) hectares of reforested land, 2) measurable control of forested land, 2) measurable adoption of land use, soil and water conservation practices, and best management practices for forests and 3) measurable enforcement of environmental laws through fines levied, and judgements granted

b) Adoption of comprehensive land-use planning This is required to protect natural resources, prevent development in hazard-prone areas and to enhance sustainable urban development Although some land-use planning is in effect in Burma, a national policy is needed, with special emphasis in urban areas

Sources of funding	multilateral donors, such as ADB, bilateral donors, including USAID
Performance indicators	1) adoption of a comprehensive national land-use plan, 2) adoption of definitive urban area land-use plans, 3) adoption of regional natural resource oriented land-use plans, and 4) adoption of regulations, rules and fines for plan violators

Priority Need 4 Provide for enhanced training and information Disaster management begins with adequate and accurate hazard, vulnerability and risk information Decision-makers must be provided with reliable, prioritized data in order to make decisions about disaster management that are cost effective, culturally acceptable and responsive to local needs Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Complete hazard mapping and vulnerability assessments of the major hazards and develop prioritized risk assessments for each disaster type Necessary MIS and GIS may be required, but should only be provided if assurance of coordination with other agencies can be affected and such systems are managed by trained personnel

Sources of funding	Government of Burma, bilateral donors, NGOs
Performance indicators	1) measurable steps towards hazard identification, mapping and assessment of major hazards, 2) measurable steps towards vulnerability assessment and mapping of major hazards, 3) evidence of engaging in risk assessments of major hazards, 4) development of prioritized needs to strengthen prevention, mitigation and preparedness measures for major hazards, and 5) number of personnel trained in MIS and GIS

b) Expand technical training Use both external and local training to upgrade technical skills of those involved in prevention, preparedness and response Western and advanced developing countries in the region offer excellent opportunities for such training

Sources of funding	UNDP, bilateral donors, and NGOs
Performance indicators	1) number of certified fire fighters, 2) completion of study tours abroad, 3) measurable improvements in response performance, and 4) number of in-country certificates of training, and 5) number of certificates from technical courses abroad

The degree of risk of providing the above needed assistance to Burma is high Until human rights issues are resolved and democratic processes restored, the best chances for humanitarian programmatic success will be in direct food or relief aid at times of crisis Therefore, those initiatives related to response coordination, needs assessment and devolution of relief efforts to the local level will be the highest priority New initiatives by the Government of Burma, such as the stated policy to promote disaster reduction and effective response in time of crisis, may be subject to criticism when indeed that same government may be the source of crisis

3 3 Humanitarian Assistance and Disaster Reduction Needs of Cambodia

Cambodia stands at a particularly critical cross roads in its path to economic and social development The current government, a coalition of people who have been either political or military enemies, has no substantive capacity to deal with disaster The Khmer Rouge still control six percent of the country and can seriously disrupt services and undermine international confidence

Strengthening of democratic principles and developing human resources remain the two most important strategies for development in the country today Any effort at improving humanitarian assistance or inculcating disaster risk reduction into development strategies must come second to that strengthening In acknowledgement, USAID/Cambodia places emphasis on programs that will help "build Cambodian capacity and help establish an environment conducive to sustainable growth " The following priority needs are identified with this point in mind

Priority Need 1 Strengthen governance, support economic growth and meet basic human needs
For Cambodia to take charge of its own humanitarian assistance and disaster education needs in a substantive manner, the fragility of the current society and government must be lessened Otherwise a dependance on external humanitarian assistance in the form of direct relief aid will continue indefinitely USAID/Cambodia's strategy includes the following 1) co-financing of NGO activities that address basic human needs in health, vocational education, community development, rural saving and microenterprise credit, care for displaced children and orphans, prosthetics and demining, 2) democratic initiatives to support better governance, 3) technical support to improve government's analytical capability and policy making, 4) emergency rural road repair to link growth centers, 5) teacher training and materials for primary education, 6) rural farm-to-market road rehabilitation, 7) commodities, training, information, education and

communication support for maternal health and child spacing, 8) technical assistance and material support for environmental planning and advocacy, and 9) follow-on PVO co-financing [8] Duration primarily accomplished within the five-year time frame of the RSM/EA Plan Some projects, such as democratic initiatives and policy technical support may be long term

Sources of funding	USAID, bilateral and multilateral donors, NGOs
Performance indicators	1) Measurable strengthening in democratization, 2) reduced death, injury and economic loss rates due to civil conflict, and 3) increased economic growth

Priority Need 2 Need for a national policy and plan for disaster management A structure for a national policy, plan and institutional organization has been developed for Cambodia but requires implementation [9] The legislative authority to empower a policy, with rules and regulations for control, organizational structure for administration and effective implementation is needed A national policy and plan for disaster management requires the completion and implementation of the following three projects a) a Comprehensive National Disaster Management Act, b) a National Committee for Disaster Management, and c) a National Disaster Management Plan Duration within the five-year time frame of the RSM/EA Strategic Plan

Source of funding	UNDP, bilateral donors, NGOs
Performance indicators	1) creation of the committee, 2) passage of the act, and 3) adoption and implementation of the plan

Priority Need 3 Enhancement of local response and relief capability The delivery of primary humanitarian assistance in the form of foodstuffs, plastic sheeting, temporary housing, medical care, water, sanitation and other emergency supplies and support will continue in Cambodia for some time Through the auspices of the UNDP, a program has been developed to assist the Cambodian and international governments to better understand what materials or donations are needed at time of crisis, and who within the government is coordinating donated supplies, gifts and resources Duration long-term, beyond the five-year time frame of the RSM/EA Plan

a) Coordination between NCDM and UN DMT should be encouraged The incumbent UNDP Resident Representative should be proactive in encouraging disaster preparedness, and response and relief The UNDP-sponsored UN DMT can be a useful tool in the solicitation and coordination of international aid

Sources of funding	UNDP
Performance indicators	1) number of joint meetings held annually, 2) number of joint needs assessment exercises conducted annually, and 3) number of requests to donors through UNDP for assistance

[8] USAID, 1994, *USAID Assistance Strategy for Cambodia FY 1994-97*

[9] UNDP, 1994, *Cambodia Report of the Disaster Management training Program Country Workshop*

Priority Need 4 Inculcation of prevention, mitigation and preparedness in all development projects As economic development progresses, respective prevention and mitigation practices should be required as components of development The International Committee on the Reconstruction of Cambodia (ICORC) or a relevant agency should be assigned lead responsibility for assuring all projects inculcate PMP when required The UNDP should be the review agency of all UN sponsored projects to assure similar coverage of PMP

a) Review all projects for appropriateness and inclusion of PMP policies

Sources of funding	any donor or developer involved in a project that may increase national vulnerability to disasters or requires PMP strategies
Performance indicators	1) number of environmental impact assessments completed, 2) number of risk assessments completed, and 3) required UNDP approval of all UN-sponsored projects

The degree of risk of failure in trying to implement strategies for the needs identified above is high All programs, whether for democratic reform, human resource development, disaster management or humanitarian assistance face the same impediments identified by international observers working in the country The following have been noted and should be borne in mind in the translation of needs to useful strategies 1) Cambodian training institutions are underfunded, lack management staff, do not have well-trained and committed teachers and suffer from a lack of adequate educational materials, 2) civil servants are underpaid, discouraged and often corrupt, 3) projects designed by foreign agencies often are poorly adapted to match Cambodia capacity to carry them out (money alone does not meet that capacity building need), 4) use of existing capacities in development, humanitarian and economic reform programs are recommended - these resources, especially human exist, but are often disused or under-utilized to best effect - they need to be inventoried, and 5) programs should be planned and implemented with minimal foreign advice and assistance Cambodia represents one of the poorest countries in the world with the most fragile government of the seven countries of interest Although it represents the greatest of opportunities, it also has a history of terrible catastrophes

3 4 Humanitarian Assistance and Disaster Reduction Needs of China

The Chinese government has stated that "disaster reduction is an important aspect of promoting social progress and economic development "[10] The guiding principle of that policy is to "give top priority to disaster prevention and integrate this with disaster-combating and relief operations " Through the forum of the International Conference on Disaster Management and the Disaster Management Training Program Country Workshop, both held in 1994, China has developed a clear development objective to promote further national economic and social development by minimizing the human casualties and economic losses from natural hazards and

[10] CNCIDNDR, 1993, *National Report of the People s Republic of China on Natural Disaster Reduction*

the adverse effects which these have on sustained human development It is to this broad objective that China currently is developing projects for disaster management strengthening

With the rising power of UNCINDR as the major coordinating body for humanitarian assistance and disaster reduction in China that theme has been elaborated in the context of the policy statement to give rise to an over-all development goal to be met by the two objectives 1) formulation of a national mitigation strategy to direct the coordinated implementation of a comprehensive, multi-sectoral national disaster reduction program through the Year 2000, and 2) increase the institutional capacity and management support systems of CNCIDNDR to promote and to coordinate integrated, inter-ministerial disaster mitigation program development

It is upon these principles that the following needs and tasks are based [11] China is dedicated to disaster reduction and human resource development and the majority of the programs elicited are funded completely or partially by the Peoples' Republic of China (PRC)

Priority Need 1 Formulate a comprehensive, multi-sectoral national prevention and mitigation strategy at national and local levels Through the CNCIDNDR, steps are already being taken to initiate country-wide disaster management A formulation mission by an ADPC expert in mid-1994 resulted in projects to realize that goal by prioritizing mitigation projects and activities to produce a unified program Duration within the five-year time frame of the RSM/EA Plan

a) Develop a National Disaster Reduction Plan The plan should be developed in conjunction with the CNCIDNDR panel of experts and a panel of invited foreign experts, who will compile and analysis the important disaster issues facing China

Sources of funding	PRC, bilateral donors, and UNDP
Performance indicators	1) implementation of National Disaster Reduction Plan, 2) development of prioritized projects to compliment the Plan, and 3) implementation of prioritized projects

b) Integrate relevant mitigation efforts into the National Disaster Reduction Plan Examples include several related, but previously separate projects, such as the inculcation of disaster research into urban environmental planning, upgrading seismic and water-related hazard mitigation standards, reinforcing existing structures following needs assessment to withstand hazards, and support of land degradation control projects

Sources of funding	PRC, bilateral donors, and UNDP
Performance indicators	1) comprehensive urban plan adopted and enforced, 2) adoption of upgraded seismic and water-related hazard standards and codes, 3) number of structures re-enforced, and 4) number of land degradation control projects

[11] UNDP Project Document CPR/91/714/C/13/99 and UNDP 1993 "China's Natural Disaster Management System Establishment of a National Integrated Assessment, Prevention, and Response Program" (8-8A), *Priority 8-Population Health and human Settlements*

Priority Need 2 Conduct integrated national risk and needs assessments of disaster management Although the Chinese government considers current levels of risk assessment modest, it stands ahead of the other six regional countries in this respect The government recognizes the inadequacies, gaps and lack of over-all integration of risk assessment in disaster management policy making Additionally, and in spite of the significant gains made by the CNCIDNDR, over-all coordination and integration of concepts and standards into disaster management are needed Duration within the five-year time frame of the RSM/EA Plan

a) Support an integrated national hazard, vulnerability and risk assessment The assessment should build on the strength of the significant technical expertise in risk assessment It should also develop common databases in a MIS, including GIS, the latter being recognized as an important tool for the successful analysis and management of remote-sensed and environmental data used in risk assessment

Funding sources	PRC, bilateral donors, UNDP working with UNEP-GRID
Performance indicators	1) creation of an integrated GIS with trained personnel, 2) development of GIS generated hazard and vulnerability maps, and 3) evidence of regular updating of hazard and vulnerability maps for all major hazards

b) Formulate a comprehensive urban environmental management plan as a part of the National Plan Basic research on mitigation activities in urban settings is needed in the Chinese context China's level of scientific knowledge about natural disasters is high, but its relation to the urban environment not well understood Using MIS, research on the environmental health of Chinese cities could be analyzed and translated into effective sustainable urban management guidelines

Sources of funding	PRC, and bilateral donors (a potential for support by the Asian Urban Disaster Mitigation Project)
Performance indicators	1) adopted Comprehensive Urban Management Plans, 2) inculcation of research into urban planning and zoning law, and 3) adoption and enforcement of urban planning and zoning

Priority Need 3 Develop and improve existing forecasting and warning systems The effectiveness of preparedness for disastrous events is directly related to forecasting, warning and awareness systems Although China has extensive and elaborate systems, their over-all effectiveness can be improved through the following activities 1) enhanced marine environment observation and forecasting, 2) monitoring for agricultural and forest pests, 3) improved national forecast systems, 4) continued seismic monitoring and forecasting, 5) monitoring and warning for landslides and mudflow, and 6) use of mass media to reduce natural disasters and promote training in reduction skills Duration within the five-year time frame of the RSM/EA Plan

Sources of funding	PRC, multilateral and bilateral donors, UNDP, WMO
Performance indicators	1) reduced loss of life and property, and 2) reduced agricultural production loss from pests

Priority Need 4 Improve international cooperation and exchange of information President Jian Zemin, in 1993, wrote "China is now speeding up its reform and opening to the outside world so as to promote economic construction " That outreaching is intended to inculcate the principles of risk reduction with foreign assistance Urban and environmental management training in Western or developed regional countries can be particularly beneficial The following two major tasks may accomplish that end Duration on-going, long term

a) Enhance the relationship with the UN DMT, through the UN Resident Coordinator, for all UN activities in time of disaster The UN DMT can be a dynamic lead agency in humanitarian assistance, serving as the conduit for international relief assistance

b) Promote study tours in regional developed and Western countries Such tours may provide a wealth of new information to Chinese decision-makers and technicians

Sources of funding	PRC, UNDP, bilateral donors, private sector
Performance indicators	1) number of joint UN DMT-government meetings, 2) completion of joint UN-Chinese exercises, 3) increased international assistance, especially in the post-crisis period, and 4) number of study tours completed

The degree of risk associated with support to Chinese initiatives for humanitarian assistance and risk reduction stands low in relation to that of the other regional countries Current political resolve is the single major support for that low degree of risk Until human rights and democracy issues are resolved direct international humanitarian assistance in the form of food stuff and relief supplies may be the preferred focus of that aid, rather than support for more extensive, costly prevention, mitigation and preparedness strategies

3 5 Humanitarian Assistance and Disaster Reduction Needs of the Lao PDR

The Government of Laos has proven particularly ineffective in the provision of disaster management NGOs are the major providers of immediate relief in the country, giving those services as adjuncts to development programs already in progress The World Food Program, with donations from the US and the EEC as well as others, is the major provider of foodstuffs and supplies that are ultimately distributed following floods or during times of drought The WFP, however, faces many problems in provision of relief items because of the lack of accuracy and credibility of government needs assessments

The identification of needs to strengthen disaster management that follow arise from two essential sources 1) those recommended by the government and transnational committees that include Lao government representation, and 2) those recommended by NGOs, donors and international observers A fuller description of perceived needs is elaborated in Annex C

Priority Need 1 Establish consolidated disaster management coordination The current structure for disaster relief and reduction within the Lao PDR focuses on flood relief, mitigation and preparedness, with some relevance to drought Environmental and economic development issues which should inculcate PMP are dealt with separately, if at all A need to establish and continue a closer relationship with relevant government agencies and their counterparts in international humanitarian assistance and disaster reduction is required along with mechanisms to coordinate and cooperate in those initiatives Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Establish a Lao Disaster Management Committee of relevant ministries and the Lao Red Cross, with an appropriate secretariat of sub-ministries The principle roles of the Committee would be to coordinate all aspects of disaster management, oversee all risk, hazard and vulnerability assessments, as well as needs assessments arising at the time of crisis, review all development projects to assure prevention, mitigation and preparedness measures are included, and serve as the government's lead agency to the UN DMT

Sources of funding	UNDP and the Lao PDR
Performance indicators	1) creation of a proactive Disaster Management Committee, 2) minutes of regular meetings, and 3) policy statements

b) Encourage the sustainability of the UN DMT This responsibility falls largely on the Resident Representative The effectiveness of the UN DMT is essentially dependent on the relationship with the incumbent Resident Representative and the government That relationship is necessary, especially on the review and inclusion of prevention, mitigation and preparedness policies into UN agency development activities The responsibility of this task therefore rests with UNDP and participating partners

Sources of funding	Lao PDR and UNDP
Performance indicators	1) number of regular meetings, 2) number of completed needs assessment field exercises, and 3) number of requests for international assistance through the Resident Coordinator

c) Establish Technical Working Groups These groups should be comprised of key officials, NGOs and UN agencies for specific hazards (e g deforestation) These groups could well be sub-committees of the Lao Disaster Management Committee and could be supported by NGOs and small international donors for specific needs

Sources of funding	Lao PDR, NGOs, bilateral donors, and UNDP
Performance indicators	1) formal organizational structure of working groups, 2) number of working group meetings, and 3) publications, directives, policy suggestions and recommendations for disaster management improvement, enforcement and support

Priority Need 2 Establish an accurate and reliable information system Donors such as WFP and USAID must rely on government assessment of needs in time of crisis and when requests for international assistance are made Data to determine actual needs is often unavailable or the data suffer from serious inaccuracies Timely dissemination of warnings to communities is equally unreliable and unavailable due to communication inadequacies (roads, telecommunications) There is a need to improve data collection to ensure accurate information is collected, collated and disseminated to concerned government ministries, UN agencies, NGOs and the public Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Establish a realistic mechanism for needs assessment Reliance on NGOs in the field conducting development projects may provide more accurate information than government sources Through the UN DMT these agencies could be trained to provide rapid, relevant and simple post-disaster needs assessment until local government representatives of the LDMC are identified to carry on the task

Source of funding	Lao PDR and UNDP
Performance indicators	1) verifiable needs assessments, and 2) number of needs assessments exercised

b) Improve information for forecasting and warning Review and improve the existing flood warning and prognostics system at two levels flow in the Mekong and its tributaries, and the amount of local rainfall It is essential that additional river and rain gauging stations be put in place and equally important that they be maintained and used

Source of funding	WMO, UNDP, multilateral and bilateral donors
Performance indicators	1) number of flood and rain gauging stations, 2) data from new stations, and 3) maintenance records on gauging stations

c) Road improvement and telecommunications Support projects that improve community access through transportation routes or electronic links Small donors may be more practical than single large donors funding massive projects

Sources of funding	Lao PDR, multilateral and bilateral donors and UNDP
Performance indicators	1) kilometers of rehabilitated road, 2) increase in traffic index over previous indices, 3) number of new telecom relay stations, 4) number of new telecom receiving and transmission stations, and 5) number of new telephone and fax services installed

Priority Need 3 Effective government responses to disaster events A major criticism of the Lao PDR government by the international community is its failure to respond effectively and in a timely manner in time of crisis, with the most effective response being the affected community itself and NGOs working in the affected area Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Stockpile strategic materials The Budget Bureau should allocate adequate funds to support relief operations at a specified percentage of the national budget Instruments, tools and vehicles necessary for disaster relief operations should be strategically stockpiled and identified Vehicles and radios should be multi-purpose, that is, they should be used regularly for other purposes (road maintenance, administration and communication) and be diverted for use in evacuation and relief during time of disasters

Sources of funding	Lao PDR, NGOs, and bilateral donors
Performance indicators	1) response and recovery budget, 2) mechanism for efficient funding distribution and accounting, 3) field evaluation of effectiveness, 4) inventories of new and existing equipment, and 5) number of exercises testing equipment readiness

Priority Need 4 Need for sustained public awareness, community preparedness and personnel training As is well known in the West, inculcation of the hazards of modern living and environmental degradation is learned over a lifetime, by those growing up in a technological world Such education is also required in Laos, beginning in primary and secondary schools Public awareness of disaster reduction issues of national and local importance should be initiated and sustained Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Train government staff in disaster management Training is required to improve technical and management skills of relevant agencies Because of a lack of proficiency by most officials in English, courses conducted in-country in Lao by the LDMC may be more effective Collaboration on training curricula design and conduct with ADPC through UNDP or LRC may be an effective avenue to facilitate appropriate training

Sources of funding	Lao PDR, NGOs, and bilateral donors
Performance indicators	1) number of ADPC alumni, 2) number of course completion certificates, and 3) number of courses conducted in Lao PDR

b) Public education and community preparedness needed to mitigate disasters should be encouraged by international agencies and local NGOs Demonstration exercises, carried out in cooperation with government agencies, may be effective public education tools

Sources of funding	Lao PDR, UNDP, bilateral donors and NGOs
Performance indicators	1) number and quality of disaster awareness campaigns by Lao PDR or NGOs, 2) number of demonstration and preparedness exercises completed, 4) number of media ads, and 5) curricula in primary and secondary schools

Priority Need 5 Continue loss prevention programs In the face of economic development and the continued urban expansion of Vientiane, Savannakhet, Luang Prabang and other cities in Laos, disaster reduction programs already initiated or proposed should be expanded or implemented New programs specific to hazard and vulnerability prevention and mitigation in urban settings should be encouraged and funded Duration protection strategies within five years, maintenance and enforcement on-going

a) Make improvements to Vientiane floodplain Implementation of proposed and on-going flood loss prevention projects in the Vientiane floodplain should be undertaken by the government under support of UN agencies Those projects should include model ordinances for restricting development and preserving in flood plains

Sources of funding	Lao PDR, multilateral and bilateral donors, UNDP and NGOs
Performance indicators	1) structures installed or strengthened, 2) reduced flooded areas during monsoon, 3) hectares of preserved marshlands or flood plain, 4) evidence of enforced land-use planning, and 5) level of NGO activity in advocacy and monitoring

b) Develop flood protection schemes in the Ban Hieng and Se Done Basins Establish forecasting and warning systems, and a master plan for flood loss prevention in these important basins, based upon experience, lessons learned and successes of the Mekong basin management efforts Such schemes could well be tied to support by relevant transnational committees or initiatives for flood protection

Sources of funding	Lao PDR, multilateral and bilateral donors, UNDP
Performance indicators	1) number of forecasting and warning systems installed, 2) implemented Master Plan for Ban Hieng and Se Done Basins, and 3) number of flood protection projects implemented

The degree of risk for successful completion of strategies developed to meet the above needs is modest Since the political will to institute and complete such programs must be demonstrated before they are effective, such commitment should be elicited from the Lao PDR government

For those specific needs identified to be undertaken by the Lao PDR and local NGOs, practical solutions must be simple and realistic within the Lao context Overly complex systems, projects and proposals will fail or incompletely realize their goals Many small projects of short duration are encouraged over large, intricate and long term projects Translation of proposals and projects into the Lao language is not only desirable but necessary for program implementation, realization and completion

As one of Asia's poorest and least developed countries, Laos has found foreign assistance economically attractive This has led to a dependency that currently raises concern with some international donors Cost-benefit analysis of humanitarian assistance programs may, however, provide higher levels of sustainability than other approaches, if it is assumed that the Lao people are its major resource Continuing benefits may be realized simple projects by international

agencies and NGOs The relief and response efforts they provide are often superior and more timely than that provided by the Lao PDR government Certainly concerns over corruption, skim-offs, pay-backs and lack of responsible care are minimized by utilization of international NGOs and UN agencies But that does little to reduce the level of foreign aid dependence

The challenge is to wean Laos from its current dependence on foreign humanitarian assistance and disaster reduction aid yet at the same time assist it in sustainable development Obvious and sincere political commitment is paramount That, however, must be tempered with the realization of the level of corruption within the government and the essential lack of Laotian commitment to national interests As in Thailand, if the individual can see the benefit to themselves, programs may have a greater chance of being accepted and implemented

3 6 Humanitarian Assistance and Disaster Reduction Needs of Mongolia

The pro-democracy movement in Mongolia, resulting in peacefully acquiescence to the concept of free elections and the multi-party systems in 1991, also saw the termination of Soviet aid, which amounted to 30 percent of GNP The Mongolian economy began a rapid decline to the point where the country currently stands at a critical point in its transition to a democracy Mongolia vies with Cambodia and Laos as one of the region's poorest countries Like the situation in the newly independent Central Asian Republics (CAR), economic conditions are extremely bad, presenting an added level of vulnerability to the country Whatever needs are required to strengthen disaster management must be tempered with the knowledge that the country currently has little capacity to correct deficiencies or address those needs alone

There is a strong sense of national pride among Mongolians, as is also seen in the CAR Additionally, government policies currently encourage foreign economic relations, aid and investment Both may assist in the reduction of the economic vulnerability of the country to disasters An important feature is an indication of political will to address needs with the limited resources available Additionally, through its IDNDR secretariat the Science, Monitoring and International Cooperation Department (SMICD), Mongolia has identified the essential needs to strengthen disaster response, preparedness, mitigation and prevention in the country All it requires are the necessary economic base and trained personnel to satisfy those needs A complete listing of recommendations is shown in Annex C and serves as the basis for recommendations below

Priority Need 1 Assist Mongolia in stabilizing its economy In order to afford adequate disaster response and reduction strategies, Mongolia must establish some level of self-sufficiency or it will fall into the same foreign assistance and aid trap that currently encompasses Laos and Cambodia Unlike other East Asian countries, the necessary political will to affect policy and strategy change exists in Mongolia It simply needs the resources to carry them out Rather than a policy of direct aid for PMP programs independently, those activities that will provide immediate results in economic growth, yet preserve democratic reforms, may be most beneficial

USAID/Mongolia has developed a strategy to meet that challenge [12] Focusing on encouraging and strengthening the process of democratization and promoting economic growth, the Agency proposes to promote projects that will 1) strengthen the governing capacity of Parliament, 2) strengthen and assure the independence of the judicial branch, 3) strengthen the operating capacity of new political parties, 4) promote decentralization of selected functions and increase local governance, 4) encourage greater public participation in civic affairs, 6) develop the Mongolian private sector, 7) reduce the probability of failure in the energy sector, 8) assist Mongolia implement the reforms identified in its current Three Year Plan, 9) expand and strengthen commercial banking capabilities, and 10) strengthen policy and institutional enabling for commercial banking, small and medium business and related policy implementation issues

Sources of funding	Multilateral and bilateral donors, including USAID
Performance indicators	1) increased democratic reform, 2) measurable changes in the democratization process, and 3) measurable increases in economic growth and stability

Priority Need 2 Prepare for a potential energy-related disaster The most imminent danger to over half of the population is due to stress or potential accident involving the country's fragile energy-generating systems USAID has developed a series of strategy recommendations to avert imminent failure of those systems [13] Immediate mitigation measures, based on that strategy, follow Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Engage in contingency planning Contingencies for coal production short-falls or non-production may include technical training, accident prevention strategies, adequate replacement and spare parts, and alternative energy and fuel sources

Source of funding	the Mongolian government, bilateral and multilateral donors, and UNDP
Performance indicators	1) little or no loss time in event of short-fall or break-down

b) Institute a program in rigorous inspection and monitoring The program should cover all segments of the energy production chain (mining, transport, and power plant operation) The Ministry of Energy is encouraged to promote such activities, in cooperation with Civil Defense Both agencies may require training to improve their capacities for accurate and timely inspection and monitoring

Source of funding	the Mongolian government, bilateral donors and UNDP
Performance indicators	1) number of inspections carried out, 2) content of monitoring records, 3) number of breakdowns, and 4) number of trained staff in inspection and monitoring

[12] USAID, 1993, *USAID Assistance Strategy for Mongolia FY 1994-98*

[13] USAID, 1994, *OFDA Mission Report Findings and Recommendations for the 1994-1995 Heating Season Energy Crisis in Mongolia Preparedness and Response Strategies*

c) Carry out evacuation planning The planning should cover major cities in case of winter freeze-up Not only must such plans be developed, but they must be exercised for effective implementation Assembly points must be predetermined for effective evacuation and preparations are required to stock and outfit those centers prior to a disaster or exercise Although planning may require small amounts of donor participation, actual implementation and annual exercises should be funded and conducted by the government on a long-term basis

Source of funding	the Mongolian government, NGOs and bilateral donors
Performance indicators	1) implemented evacuation plans, 2) number of evacuation exercises, and 3) number of uses of emergency operation centers

d) Provide technical assistance in non-capital intensive industrial energy conservation strategies The assistance should be linked to other ongoing programs to reduce inefficiency in the heat distribution system

Source of funding	the Mongolian government, bilateral donors and UNDP
Performance indicators	1) reduced BTU requirements in existing facilities, and 2) certified reduced BTU requirements in new facilities

Priority Need 3 Improve warning systems and enhance preparedness activities Access to global, regional, national and local warning systems and improvement of communication networks is required through affiliation with WMO, UNDP, DHA, IFRC, and others Duration within the five-year time frame of the RSM/EA Strategic Plan, except preparedness and response, which is on-going

a) Improve and expand warning systems monitoring and effectiveness The systems should be tied to an effective MIS with expanded monitoring, gauging and meteorological stations that provide for effective warning Expansion and improvement of the telecommunications systems for sustained reliability is also required Such improvement will require large amounts of external assistance for the foreseeable future

Source of funding	the Mongolian government, WMO, UNDP, and bilateral donors
Performance indicators	1) new gauging and meteorological stations, 2) kilometers of new transmission lines, 3) number of new relay stations, 4) number of new receiving/transmission stations, 5) number of redundant or back-up systems, and 6) maintenance records for gauging and meteorological stations

b) Make preparedness and response assistance available to the Government of Mongolia on a long-term basis Foodstuffs, clothing, fuel, livestock and other agriculture replacement

supplies, and emergency energy production systems may be required for some time by Mongolia International agencies should be prepared to assist immediately when the capacity of local communities cannot be met That coordination should be done through the UN Regional Coordinator (UNDP Resident Representative)

Source of funding	UNDP, WFP, bilateral donors, and NGOs
Performance indicators	1) inventories of supplies, 2) number of UN DMT, donor and government meetings on preparedness, 3) needs assessments and relief, and 4) number of government relief requests through the UN Resident Coordinator

Priority Need 4 Provide for a comprehensive national risk assessment Risk assessments of all hazards in all regions are necessary for decision-making and establishment of sound disaster management policy Efforts to date are "broad-brush" and give a good view of the scope and nature of the hazards Mongolia faces However, to be meaningful such assessments must be more detailed and on-going Duration within the five-year time frame of the RSM/EA Strategic Plan, except risk assessment which must be carried on by the government

a) Perform hazard and vulnerability assessment and mapping Efforts to date are commendable especially within the context of current economic situation in the country Enhancement of those efforts will result in accurate and complete hazard and vulnerability assessment Donors, large and small, should be encouraged to contribute through UNDP to comprehensive national risk assessment International expertise may be necessary to establish systems and provide assessment training to relevant personnel

Source of funding	Mongolian government, UNDP, UNEP-GRID, bilateral donors, and NGOs
Performance indicators	1) prioritized inventory of hazards, and 2) completed hazard and vulnerability assessments and mapping

b) Conduct a national risk assessment With hazard and vulnerability assessments completed, a national risk assessment of each hazard is required to address issues of policy, management and implementation This is a long-term effort and should be repeated at least annually, as conditions of vulnerability are expected to change significantly in the predictable future The Government of Mongolia, with risk management activities coordinated by the State Permanent Emergency Commission, should be encouraged to fund this activity solely by themselves

Source of funding	Mongolian government, UNDP, UNEP-GRID and bilateral donors
Performance indicators	1) completed risk assessments for major hazards, and 2) creation of prioritized lists of disaster risks and management strengthening needs

c) Install a managed information system The system should use GIS and integrated MIS to record, update and analyze data received through hazard, vulnerability and risk assessments Given its role as the Secretariat of the IDNDR, and its duties relative to environmental monitoring, SMICD may be the most appropriate agency to coordinate all GIS and MIS efforts of all ministries A common facilitating agency can not only coordinate data sharing, but identify new users and additional applications of such systems to other agencies Although establishment of systems will require donor support, the support for maintenance and coordination should be the government's responsibility Study tours and periodic staff upgrade training may be supported by small donors

Source of funding	the Mongolian government, UNDP, UNEP-GRID, and bilateral donors
Performance indicators	1) an operational MIS with trained personnel, 2) an operational GIS with trained personnel, 3) designation of an agency for coordination of MIS and GIS, and 4) the number of study tours or courses completed in MIS/GIS

Priority Need 5 Develop, adopt, improve, and implement mitigation and prevention strategies Mongolia has a range of adopted policies that cannot be implemented due to the current economic inadequacies Additionally, the government has a list of strategies it would like to develop and improve Those listed below are the most critical Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Training programs focusing on key personnel are required Because of the lack of sufficient proficiency in English, regional training may be more appropriate The effectiveness of such external training has already manifested itself the Senior Training Officer in civil defense is an alumni of the ADPC disaster management training program An affiliation with the CAR may represent a beneficial option, as they share common hazards and a common language (Russian) with Mongolia A regional center for disaster management is already proposed for Almaty, Kazakhstan It should be determined if affiliation with that center or a closer alliance with East Asia (especially China) is more desirable for effective disaster management training

Source of funding	UNDP, bilateral donors and private sector
Performance indicators	1) number of participants attending regional training programs, and 2) number of resource persons sent to training programs,

b) Public awareness campaigns using NGOs or government interest groups are needed Given the centralized nature of the government, it is not willing to release responsibilities to NGOs Nonetheless the government should be encouraged to work with NGOs, especially local groups, with an emphasis on environmental or disaster awareness Otherwise, special interests groups within the government, such as the SMICD, may expand their mandates to promote public awareness campaigns Government support is even more import in inculcating disaster preparedness and mitigation awareness in primary and secondary schools

Source of funding	UNDP, bilateral donors, and NGOs
Performance indicators	1) number of environmental, disaster preparedness and awareness-raising campaigns, 2) number of NGOs involved in disaster reduction promotion, and 3) measurable efforts of government agencies toward public awareness raising

c) Long-term investments in infrastructure are needed These investments are especially important to energy production and environmental protection (e g , waste water treatment, air quality control) are required to avert national tragedies These will require the direct financing from major donors, as is currently the case, until the necessary economic stability is achieved in the country A consolidated needs assessment of major capital investment may be required

Source of funding	Mongolian government, UNDP, multilateral/bilateral donors
Performance indicators	1) number of new facilities and systems, and 2) initiation of needs assessment for infrastructure requirements

The degree of risk for supporting humanitarian and disaster reduction in Mongolia is modest The impact of the current economic crisis on disaster management is offset by the political will of the Mongolian government and solidarity and cohesiveness of the Mongolian people International entrepreneurs will remain interested in Mongolia as a source of natural resources This provides both an opportunity and a danger to disaster management in the country

3 7 Humanitarian Assistance and Disaster Reduction Needs of Thailand

The Royal Thai Government has been encouraged to modify and improve disaster management in the Kingdom because of the potential impact of disasters on the economic assets generated by the nation's recent industrialization and urbanization In recognition of the need for adequate prevention, mitigation and preparedness measures in development, as well as a sound and responsible relief system, the RTG has included a separate chapter of disaster reduction and response in its up-coming 8th National Economic and Development Five Year Plan (1997-2002)

Because of its growth, Thailand is capable of support its own programs What is required is a redirection of resources away from programs that promote military build-up and other narrow-focussed, self-interested programs to those that promote national social sustainability, including humanitarian assistance and risk reduction

Through two recent initiatives, both under the sponsorship of UNDP, over 60 recommendations for strengthening disaster management in the Kingdom have been identified [14] Senior Thai official feel that the realization of a significant reduction to the risk of disasters could be met through the following limited steps

[14] UNDP, 1994, *Strengthening Disaster Management Strategies in Thailand* and UNDP Disaster Management Training Workshop, August 1994

Priority Need 1 Enhance Royal Thai Government institutional capacity Thailand has amply demonstrated it can accomplish any task to which it has political commitment The development of the Eastern Seaboard as a major center of manufacturing and commerce is a prime example of that resolve However, current efforts for protection of these assets is jeopardized by an inherent lack of cooperation and coordination between agencies, duplicating laws and regulations, compounded by poor enforcement and obedience It is evident that Thais can overcome these difficulties with adequate resources and motivation Once a commitment is made, the actions below may establish a necessary base for effective disaster management Duration within the five-year time frame of the RSM/EA Strategic Plan

a) A National Disaster Management Committee, chaired by the Prime Minister, should be created The committee should be created by combining existing committees or identifying them as sub-committees of the central committee The military, as well as all concerned agencies, must be included in committee and in the planning process It is well recognized that abolishing agencies in the Kingdom is impractical and fruitless However, reorganization through combination in which some autonomy and authority is retained may be acceptable

Source of funding Royal Thai Government
Performance indicators 1) an established Committee, and 2) Committee policy statements, legislative changes and other initiatives

b) Review and revise disaster law Critical review all laws and plans related to disaster management is needed with an attendant revision of those that are duplicated and over lap A significant integration of authority can be elicited through such an objective revision That review, to be effective, must be conducted in the Thai context by Thai academics and authorities since simply translating Western law into Thai legislation does not solve the problem and in many instances has assisted in creating the problem

Source of funding RTG bilateral donors and NGOs
Performance indicators 1) development of prioritized recommendations for change in law, and 2) number of revised and implemented law

c) Develop a Disaster Management Master Plan A single master disaster management action plan should be considered, one that is not a secret plan Separate support action plans (sectoral, contingency, regional and provincial) should be developed or revised in conformance with the master plan There already exists a model Emergency Plan for Rayong Province that may serve as a template for provincial level plans

Source of funding Royal Thai Government
Performance indicator adopted Master Plan

d) Execute existing plans Current levels of exercises of the Civil Defense Plan are fragmented, based on the interest of provincial governors and available funding Those that are conducted frequently turn into shows of equipment, crisp, stark-white uniforms, and

parades Plans, unless exercised and practiced in reality, are of little benefit Funds by the RTG must be allocated to conduct those activities

Source of funding	Royal Thai Government
Performance indicators	1) evidence of adequate funding for exercises, and 2) the number of annual provincial exercises

e) Promote ongoing national and regional risk assessment Such assessment, including hazard and vulnerability assessment and mapping, should be carried out in an on-going regional and provincial basis The necessary information management system to coordinate that effort is also required GIS, coupled with MIS, would facilitate easy access of law makers, regulators, NGOs and the public to information on changed status of hazards and vulnerabilities, as well as their management The NEB has been given the responsibility for coordination of GIS activities

Source of funding	RTG, UNDP and bilateral donors
Performance indicators	1) completed hazard and vulnerability assessment and mapping, and 2) completed risk assessments with prioritized disaster management strengthening needs

Priority Need 2 Promote humanitarian assistance and disaster reduction coordination and cooperation Coordination and cooperation among government departments and ministries, with NGOs and the private sector is a major impediment to strong disaster management in Thailand Agencies act in isolation, while at the same time request additional funds, authority and power to carry on often overlapping duties and responsibilities Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Create collaborating institutes There is a need for hazard-specific technical institutes, designated and recognized by the Disaster Management Committee, that advise on issues of disaster management, law revision, codification, mitigation and prevention Examples are institutes for building safety or for hazardous materials handling The current Engineering Institute of Thailand serves as an excellent example

Source of funding	Royal Thai Government
Performance indicators	1) recognition by the Disaster Management Committee of collaborating institutions, and 2) increased number of collaborating institutions

Priority Need 3 Improve Thailand's preparedness for disasters The private sector and NGOs are seen as vehicles for this pro-active engagement Education in the schools and public awareness raising programs are imperative in gaining public acceptance humanitarian assistance and disaster reduction activities The education must be repetitive, on-going and long-term NGOs serve an additional important function they can act as national neutral focal points or watchdogs, which can act as a catalyst to promote, cajole and encourage in a non-adversarial way all the various agencies inside and outside of the government

a) Create sustained public awareness about disaster prevention and mitigation issues Provide improved public participation (private sector, NGOs, public at large) in disaster management This should include public access to rules and regulations and the public's early participation in their development

Source of funding	Royal Thai Government, NGOs and the private sector
Performance indicators	1) number of annual awareness raising campaigns, 2) number of ads in media, and 3) number of NGOs participating in policy issues in disaster management

b) Enhance responses and relief activities There should be dedicated and adequate funds for disaster response and the necessary rules to permit their expedient use

Source of funding	Royal Thai Government
Performance indicators	1) measurable evidence of dedicated funding, and 2) measurable efficiency in fund distribution and accounting

c) Improve communication and information systems Improvement is needed in the communications and warning plans of the Kingdom along with adequate resources to realize their effective operation Pooled equipment used in response activities would provide mutual benefit to agencies and recipients Establishment a dedicated information network, including GIS, MIS, Early Warning System, that promotes exchange and easy availability of information is also needed

Source of funding	RTG, WMO, UNDP, bilateral donors and NGOs
Performance indicators	1) measurable improvement in communications, 2) establishment of inventories of pooled equipment with lists of cooperating agencies, 3) implemented MIS and GIS, 4) number of adequately trained MIA/GIS staff, and 5) number of provincial and regional assessments conducted using GIS

The degree of risk in providing assistance to Thailand is moderate Although Thailand can well afford stringent and active disaster reduction strategies and provide for its own humanitarian assistance, the political will to act is negligible in the Kingdom Although politicians voice great concern for responsible new laws and greater action at the time of disaster, that concern quickly evaporates until the next major accident occurs

Thailand's current dilemma is related to its recent astonishing economic growth, with profit being put ahead of safety or the environment The rapid transition from an agrarian society to an urban society has replaced traditional rural values, which is seen the development of an affluent city middle class - an "urban-centered social hierarchy dedicated to prestige and power "[15] The concept of public responsibility has developed more slowly because of the traditional allegiance

[15] O'Conner, R A , 1989, "From Fertility to Order, Paternalism to Profits the Thai City's Impact on the Culture-Environment Interface" in *Culture and Environment in Thailand*, Bangkok Siam Society, pages 393-414

to the Royal Family, Buddhism and one's immediate family Personal responsibility does not necessarily extend to other sectors of society

A "culture of safety" is seen as necessary to protect Thai society from the hazards it currently faces Such a culture was first promoted at the UN Conference on the Environment and Development in Rio de Janeiro in 1990 Development of such a culture in Thailand can only be afforded by the Thais themselves in a manner acceptable to Thai culture In that context, incentives appear a more attractive option to enforcement, since the latter is so ineffective in the Kingdom A senior Thai statesman, who has conducted very successful social development programs in the country, concludes that his success has been based on the premise that if Thais see the immediate benefit for themselves and their families they will follow the dictum under consideration

3 8 Humanitarian Assistance and Disaster Reduction Needs of Vietnam

Vietnam's geographic situation places it such that water-related disasters will continue to be, and possibly increase, as the country's major source of disasters The country has a long and continuing tradition of reliance on foreign aid for its disaster response and reduction programs Current rapid industrial expansion, urbanization and deforestation suggest more attention is required to mitigate potential disasters of technological and environmental origin International aid is currently expanding to address issues of the environment, biodiversity and forest management

Although the country has an age-long tradition of flood disaster mitigation, water resource-related disaster still ranks as the most severe threat to the economic and social development of the country In 1992 following an International Workshop on Flood Mitigation, Emergency Preparedness and Flood Disaster Management in Hanoi, a *Strategy and Action Plan for Mitigating Water Disasters in Vietnam* was prepared by the Central Committee for Flood and Storm Control (CCFSC) and the VNCIDNDR (Annex C) They, along with specific needs identified by ADPC, are used as the basis of the needs identified to reduce the impact of disasters in Vietnam that follows

Priority Need 1 Foster sustainable development in areas prone to water disasters Although Vietnam has long practiced structural mitigation, water-related disasters are unavoidable and will continue to plaque the country While prevention strategies will have minimal or no effect, non-structural mitigation measures and preparedness activities may be the most cost-beneficial Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Incorporate disaster mitigation considerations into the development process This can be done by requiring all developers to include in their capital outlay necessary structural mitigation measures to limit damage from typhoons and floods International donors should require risk assessments and environmental impact assessments of all development projects in Vietnam and be prepared to pay the extra cost for sound PMP

Source of funding Vietnamese government, UNDP, bilateral/multilateral donors
Performance indicators 1) number of projects reviewed and approved that require PMP, and 2) measurable inclusion of PMP in projects implemented

b) Seek alternatives to the older-type dike strategy of protection Continued monitoring and repair of dikes is required until such time that cost-effective and socially-acceptable strategies are identified to replace them or promote more effective construction Several studies and projects are on-going in this regard

Source of funding Vietnamese government, UNDP, bilateral/multilateral donors
Performance indicators 1) reduced funding for and use of dikes, and 2) alternatives to dike construction

c) Enhance existing preparedness and response strategies Improve forecasting and warning systems in cooperation with the Mekong Committee and WMO Increase physical stockpiling of relief supplies and promote emergency training of relevant staff

Source of funding Vietnamese government, UNDP, WFP, and bilateral donors
Performance indicators 1) measurable inventories of relief goods and stockpiles, 2) monitoring and evaluation for appropriateness of relief goods, 3) measurable improvement in forecasting and warning, and 4) positive public evaluation of warning systems

d) Provide training for key officials A noticed lack of training in the all aspects of disaster management is noted among relevant government officials Support of such training at regional institutions such as PAGASA and ADPC, as well as continued in-country seminars on risk reduction are encouraged

Source of funding Vietnamese government, UNDP, and bilateral donors
Performance indicators 1) number of certificates for courses completed regionally, 2) number of completed courses internally, and 3) number of study tours completed

Priority Need 2 Preserve the remaining forests of Vietnam (and adjacent countries) Total forest cover has shrunk 36 percent in the past 50 years Degraded watersheds exacerbate flooding, reduce biodiversity and affect the quality of life in Viet Nam Watershed management is considered by the Vietnamese authorities themselves as their greatest challenge Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Protect disaster-prone areas and sensitive environments against development that require expensive mitigation measures and that will increase expenditures in rehabilitation and relief Some areas should simply not be developed Pressures from the poor for habitation, developers for profits and the government for "social" reasons will all vie for development in areas clearly not suited for any purpose other than as natural preserves The public should be made aware of the impact of development on sensitive areas

Source of funding	Vietnamese government, UNDP, bilateral/multilateral donors
Performance indicators	1) hectares of preserved flood plain, 2) hectares of rehabilitated natural land (forests, mangroves), and 3) measurable enforcement of zoning laws

Priority Need 3 Prepare for sustainable urban environmental development For its stage of development Vietnam is under-urbanized Future urbanization and resultant encroachment into sensitive environments, coastal lands and disaster-prone areas is expected to accelerate with increased population growth and economic growth Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Promote environmental risk assessments in all urban and industrial areas on an annual basis Deterioration of air and water quality due to development changes over time What is a high priority today may not be in five years There is a need for sustained, regular risk assessment by a technical institution in Vietnam, with a defined risk a assessment methodology that is repeated That facility needs to be identified and staff trained

Sources of funding	Vietnamese government, UNDP and bilateral donors
Performance indicators	1) number of risk assessments completed annually, 2) evidence of prioritization in completed risk assessments, and 3) personnel trained in risk assessment methodologies

Priority Need 4 Establish a multi-purpose managed information system Vietnam has collected a mass of information regarding disasters and disaster phenomena The information requires effective management to make it useful, not only to the country, but to the region Duration within the five-year time frame of the RSM/EA Strategic Plan

a) Develop geographic information systems Establish an effective information management system primarily for forest management, flood and typhoon management and urban environmental management Such systems already exist, but are locked away in individual user's offices A coordinated national effort, led by the government, is required to bring all such systems and information to a common focal point

Sources of funding	Vietnamese government, UNDP/UNEP-GRID, bilateral donors
Performance indicators	1) evidence of coordination of GIS, 2) number of personnel trained in the application of GIS, and 3) expanded inventory of GIS data sets, applications and users

The degree of risk associated with the successful implementation of humanitarian assistance and disaster reduction programs in Vietnam is modest That moderate rating arises primarily from the realization that Vietnam will always be struck by typhoons and floods Mitigation measures to reduce impact will be costly and of limited value, preparedness in the form of warning, stockpiling, timely and effective relief and promotion of rapid recovery may be the most cost-beneficial strategy of management for Vietnam

As the country moves into a market-oriented economy with the expected high level of industrial and urban development, the opportunity presents itself to shift centuries-old habits of disaster reduction to more relevant practices that inculcate the best in non-structural mitigation Vietnam's reliance on foreign aid to accomplish this end should be used as the springboard to require innovative thinking in flood control, risk assessment needs in urban planning, and other requirements for sustainable development in a country that will continue to be struck by floods and typhoons

3 9 Humanitarian Assistance and Disaster Reduction Needs of the East Asia Region

Throughout the country-specific material presented above, needs related to two or more selected regional countries was noted Where such duplication of needs is identified, transnational assistance or cooperation may be beneficial in reducing costs of providing the particular strengthening strategy Common themes and requirements for effective humanitarian assistance and disaster reduction that may be best met on a transnational basis include [16]

- integration of a disaster reduction agenda and related activities into country national development planning processes, or in the presentation of an explicit "National Plan of Action,"

- establishing financial and other forms of resource commitment within countries and by international organizations committed to individual national development objectives,

- creating a visible and functional institutional focal point to direct and coordinate a coherent transnational program of activities,

- establishing means to identify and then to promote access to the wide range of professional abilities, information and resources available within the country and within the region, and

- encouraging and coordinating the undertaking an annual national risk and needs assessments that are applied on their own terms, and encouraging prevailing commitments to incorporating disaster awareness and reduction measures in their national development program

---

[16] ADPC, March 1994, *Critical Issues for the Realization of IDNDR Objectives in South and South-East Asia*

Efforts at transnational cooperation have been tried with varying degrees of success As an example, UNDP has spent US$50 million over 30 years in support of the Mekong Committee, an organization to promote development and protection of the Mekong Basin Although there were degrees of success, the total usefulness of the Committee is still debated at a time when it is being restructured as the Mekong Basin Commission UNDP has already expressed its desire to "wean" the Commission from UNDP dependence and seeks donor support to do so Prospective bilateral donors, however, are seeking an assurance of credibility, reliability and accountability of and by a regional body that has garnered a somewhat tarnished reputation

On the other hand, the success of ADPC in its eight years of providing training to governments throughout Asia and the Pacific is testified to by over 1,000 alumni, many now holding senior positions of policy and decision making in their respective governments Support of such reputable regional institutions is necessary for their sustained benefit to East Asia

Transnational cooperation is needed to facilitate implementation of common strategies, many identified above Based on those common needs noted above among the seven countries of interest the following needs are outlined

a) Establishing regional collaborating institutions Some institutions that offer region-wide availability of their services were noted in Section 2 Training needs were noted for all seven countries, especially in needs assessment, risk assessment, basic disaster management training and special focus training, such as early warning systems and fire fighting Those training needs are and can continued to be met on a regional basis

An inventory of all such regional institutions of technical excellence with an evaluation of their relative merit and usefulness should be carried out Support for collaborating research institutions (CRI) should ideally come from participating countries as a necessary show of support Also, reliance by the CRIs on bilateral donors often promotes donor-driven initiatives rather than the real needs of recipient countries

Sources of funding	For establishment of a coordinated regional body UNDP, bilateral donors For support of regional collaborating institutions regional countries, bilateral donors and NGOs
Performance indicators	1) number of annual participants to CRI courses, 2) number of annual consultancies by CRIs, and 3) measurable evaluation of regional collaborating institution's technical excellence

b) Creation of uniform, coordinated GIS and MIS systems Geographic information systems have revolutionized the way data is viewed for disaster and environmental management UNEP-GRID has a mandate to assist regional countries expand and utilize these systems The agency maintains a large data base of remote-sensed (satellite) data, but requires data of smaller scale (1 50,000 to 100,000) for effective use in environmental and disaster These can be developed in cooperation with participating countries, along with national capacities to utilize GIS to fullest effect in hazard, vulnerability and risk assessment and management

Sources of funding	UNDP, UNEP-GRID, bilateral and multilateral donors
Performance indicators	1) established data sets for all regional countries for primary layers of importance such as soils and vegetation, 2) annual or regular hazard, vulnerability and risk assessments, and 3) trained staff in GIS and MIS

c) Encouragement of regional and international cooperation in disaster management The UN DMT provides an important bridge between regional governments and international agencies and countries It is also an effective forum for coordination of NGO activities in humanitarian assistance and risk reduction Because its strength and utilization is dependent upon the initiative of the incumbent Resident Representative, greater use of the UN DMT, especially for preparedness and relief activities, is encouraged

Sources of funding	UNDP, and regional governments
Performance indicators	1) number of annual meetings, 2) requests for external assistance through UNDP, and 3) needs assessments completed

d) Launch regional disaster mitigation initiatives USAID currently has before it a Project Identification Document (PID) with the express purpose of reducing the disaster vulnerability of selected countries in Asia of urban populations, infrastructure, lifeline facilities and shelter [17] Although the current scope focuses on urban environments, an expansion of that scope to incorporate some East Asian countries and include rural vulnerability support may be practical Several aspects of the PID directly address needs and strategies identified herein 1) national projects of mitigation, 2) risk mapping, 3) insurance and mortgage incentives to improve construction technology, 4) improvement in urban preparedness systems, 5) risk audits for critical facilities, 6) vulnerability assessments, 7) training of trainers for national preparedness and mitigation programs, 8) information dissemination and policy workshops, and 9) clearinghouse and data base of disaster information

Source of funding	USAID has the proposal, but other donors may wish to participate, especially if coordination is conducted through a regional institution, such as AIT or ADPC Individual government support funding is encouraged
Performance indicators	1) measurable improvement in regional cooperation, 2) measurable improvement in national mitigation efforts, and increased numbers of trained professionals in disaster management

[17] USAID, 1994, *Asian Urban Disaster Mitigation Project*

SECTION 4

REGIONAL HUMANITARIAN ASSISTANCE BY USAID AND OTHER DONORS

Hundreds of donors have provided monies to East Asia for relief and other disaster management activities Many instances can be cited of individuals or organizations providing humanitarian assistance grants while visiting relief operations or development projects Those are often unrecorded or unknown outside the beneficiary agency Additionally, there are numerous projects in progress or proposed by international organizations to improve the levels of disaster awareness and reduction in the region that are not finalized, published or for which information is readily available

Only the most significant donors and funders are addressed in this review and only in a cursory fashion At this time a major review of donors in the region is being completed by the UNDP Regional Office in Bangkok Because of the necessary in-house review, the summaries of that document are not available for inclusion here This discussion begins with USAID's humanitarian and risk reduction role in the region

4 1 USAID's Role in Regional Humanitarian Assistance

USAID believes that humanitarian assistance is "not only an act of charity, but an integral part of the American vision of how a community of countries should operate "[18] The end of the Cold War and dissolution of the Soviet Union, along with the opening of remaining communist states to market economies has also created needs for external assistance in strengthening democratization and self-governance USAID views support of these needs as necessary to avert disaster Programs since 1990 have promoted funding for that dual objective

USAID has a lengthy history of supporting international NGOs in both project implementation and support to local organizations NGOs can provide important support to public awareness, advocacy and involvement of the private sector in humanitarian assistance and disaster reduction

The following assessment is principally based on OFDA's contribution to humanitarian assistance and disaster reduction Other initiatives, however, from the refugee programs and Regional Housing and Urban Development Office (RHUDO) have contributed to disaster risk reduction and rehabilitation activities This overview of country-specific projects and supported programs may not include essential programs funded since 1990 by these and other USAID programs Evaluations of completed projects were not provided in time for inclusion in this assessment

---

[18] USAID, 1994, *Strategies for Sustainable Development Providing Humanitarian Assistance and Aiding Post-Crisis Transitions USAID s Strategy*

USAID Humanitarian Assistance Activities in Burma Recent USAID humanitarian assistance to Burma has been minimal, based partly on the lack of significant catastrophes in that country Through 1991-1993 USAID/OFDA provided the following assistance 1) food and other relief assistance through the Burmese Red Cross by way of UNDRO/UNDP/BRC valued at US$10,000 in 1991, 2) food for 1991 flood victims through DHA to the Burmese Foreign Minister valued at US$6,000, 3) plastic sheeting, 300 rolls exchanged for OXFAM sheeting valued at US$150,000 also in 1991, and 4) funds to UNDP for purchase of food, clothing, cookware and shelter materials following a severe fire on May 13, 1993 in Myingyan valued at US$5,000

USAID Humanitarian Assistance Activities in Cambodia Recent humanitarian assistance efforts, from 1991 to 1993, have included 1) grants for the repatriation of refugees from Thailand through UNHCR, WFP and ICRC with funding provided by OFDA, and the Food for Peace Program, valued at US$21,500,000, 2) plastic sheeting valued at US$150,000, 3) boats, and funds provided to World Vision valued at US$154,360, 4) an assessment to identify relief needs valued at US$46,982, 5) demining and road rehabilitation valued at US$2,360,287, and 6) food relief valued at US$1,515,700 Total USAID-provided relief was valued at US$351,342 in FY 1991 and US$92,5599 in FY 1993 The US has given a total of approximately US$6 million for demining activities, pledging another US$6 million for FY 1994 and FY 1995

USAID/Cambodia recognizes that significant humanitarian needs remain to the addressed in the country and that RGC is not capable or able to take responsibility in most areas USAID's strategy focuses on meeting basic human needs, with an emphasis on building Cambodian capacity for governance and helping the government to establish an environment conducive to sustainable growth USAID/Cambodia's programs currently focus on rural development, with an emphasis on highly-visible, high-impact, short-term outcomes and at the same time making key human resource, infrastructure and institution-building investments for the future [19] These interests are paralleled and complimented by support of other bilateral donors A budget of US$1 36 billion for the fiscal Years 1994 through 1997 has been requested

USAID Humanitarian Assistance Activities in China USAID activities in China have been limited to humanitarian assistance in consideration for the relief of suffering by disaster victims A total of US$795,000 was provided following the 1991 flood of Anhui, Jiangsu and Hemanana Provinces including 1) grants to the UNDP emergency relief project and to MSF/France for provision of emergency shelter, medical assistance and potable water in Anhui Province valued at US$125,000, 2) and OFDA grant to UNICEF to restock 12 township and village level maternal and child health clinics valued at US$400,000), and 3) the US Department of Defense airlifted 70 tons of blankets into the Shanghai area, an operation valued at US$260,000

In August 1993 a dam burst in Hainan Tibet prefecture in Qinghai Province, damaging over 600 homes and flooding farm land Along with the governments of Australia, Denmark, Japan and the UK, USAID provided US$25,000 for the purchase of cotton quilts and clothing for victims

[19] USAID 1994, *USAID Assistance Strategy for Cambodia*

USAID Humanitarian Assistance Activities in Laos USAID's primary support to Laos between 1991 and 1993 has been in flood and drought relief including 1) 1991 flood relief in the form of medicines to Khammouane, Savannakhet and Chanpasak Provinces valued at US$25,000, and 2) 1992 assistance to farmers, through World Vision Relief and Development valued at US$357,494 Total support was US$382,494

USAID Humanitarian Assistance Activities in Mongolia In 1991 USAID initiated their first programs in the country, with projects focusing on of technical assistance and training Wheat and flour (25,000 metric tons) were provided by USAID in 1992 to alleviate severe food shortages Through 1993, the US government provided US$10 3 million in infrastructure and developmental assistance and US$17 million in food and commodity assistance, including another 25,000 metric tons of wheat

A definitive strategy has been developed for FY 1994-1998 by USAID/Mongolia that focuses on two of the Agency objectives democratization and economic growth Both are essential to further strengthening of disaster assistance and reduction in the country The total project proposal, front-end loaded, over a five-year period is estimated at US$33 million USAID is encouraging other donors to assist in or take over initiatives, of which strengthening the energy sector is highest priority

USAID Humanitarian Assistance Activities in Thailand USAID has had along history of humanitarian support to Thailand, with significant funding for support to Indochinese refugees through refugee programs Assistance through the USAID/Thailand's MANRES program provided recommendations for reconstruction and rehabilitation of damage caused in southern Thailand from flooding, accompanied with significant soil erosion, following deforestation Funding directly from USAID/Thailand valued at US$62,985 was also provided for food, clothing and medical assistance following the devastating Klong Toey slum fire in 1991

Based upon Thailand's economic capacity and status, USAID/Thailand has the intent to cease funding projects in the Kingdom as of Fiscal Year 1996

USAID Humanitarian Assistance Activities in Vietnam Torrential rains in October caused the death of 55 people, left 7,500 homeless and caused widespread infrastructure damage USAID provided a grant to World Concern to assist victims that included the purchase of rice seeds, blankets and cooking utensils valued at US$241,736

Following a typhoon in December 1993, OFDA provided humanitarian assistance to a fishing community that was particularly hard-hit by the storm The assistance included 1) the purchase of rice, fishnets and repair of a local clinic following losses from a typhoon valued at US$25,000, and 2) additional fishnets valued at US$19,217

4 2 Other Bilateral Donors' Role in Regional Humanitarian Assistance

With the dissolution of the Soviet Union, democratization of more countries and the move to market-oriented economies by most East Asian countries, more foreign investors and donors are coming forward The following countries besides the US provide grants or loans for humanitarian assistance

Australia through the Australian International Development Assistance Bureau (AIDAB) provides disaster relief and promotes PMP in the South Pacific and selected Asian countries, including Vietnam, Laos and Cambodia AIDAB provides support in the form of scholarships and support for Australian resource persons to ADPC's disaster management training courses

Canada through the International Development Research Committee and the Canadian International Development Agency (CIDA) promotes PMP in regional countries CIDA funds scholarships, resource persons and personnel for ADPC training activities

Japan has established disaster technical research institutes in a number of Asian countries The Japanese International Cooperation Agency (JICA) is the sponsor of the Seismic Hazards Mitigation Workshops through ADPC for engineers of the region

The Scandinavian countries of Denmark, Finland, Norway and Sweden have had a long history of support to the region, even prior to 1991

South Korea is an increasingly important partner in Vietnam, Cambodia and other countries

The United Kingdom provides assistance to Asian and Pacific countries through the Overseas Development Office

4 3 Multilateral Donors' Role in Regional Humanitarian Assistance

The Asian Development Bank (ADB) The ADB once exclusively provided rehabilitation funds for disaster recovery However, in 1992 the Bank realized that a significant amount of money was going for repairs that could have been prevented with adequate mitigation measures The Bank now has a mandate to include disaster reduction steps in all its projects in disaster prone countries Guidelines on conducting risk assessments and environmental impact assessments are published by the Bank

The ADB's regional interests include cooperation between Burma, Cambodia, China, Laos and Vietnam in five specific areas energy, transportation, human resource development, trade and investment, and tourism Recently funded was a feasibility study on a Lao-Thai-Vietnamese East-West transportation corridor, a project that if completed could open up inaccessible or poorly accessible areas to more rapid relief during times of crisis The ADB also supports UNEP-GRID's efforts to establish national GIS centers and currently has a nine-month study in progress to identify how ADPC can strengthen its role in Asia and the Pacific

The World Bank The World Bank also recognizes disaster mitigation is an integral part of the development process Through their sponsorship, a number of international workshops and conferences have been held The Bank publishes in a wide variety of fields related to risk reduction and disaster management

The European Economic Community (EEC) The European Economic Community is active in most of the seven countries of interest, providing humanitarian support in the form of relief supplies It has shown an active interest in disaster preparedness and mitigation on the regional level by funding eight Improving Cyclone Warning, Response and Mitigation workshops conducted by ADPC throughout the region

UN Agencies The UNDP is the lead UN agency in most countries Its Resident Representative also serves as the UN Resident Coordinator in time of disaster and it is through him/her that international support is coordinated, at least for those activities involving UN agencies

The UN's World Food Program is a major provider of food, supplies and logistical support at time of crisis in all regional countries It is also involved in reforestation, slope stabilization, dike construction and other rehabilitation and mitigation activities UNHCR's role in refugee assistance is well-known to the East Asian region ESCAP, UNFPA, UNICEF, UNIDO, and WHO also play important disaster-related roles in their respective areas of specialization

4.4 NGOs' Role in Regional Humanitarian Assistance

Non-governmental organizations and private voluntary organizations are major conduits through which some bilateral donors, including USAID, provide their assistance They offer a unique opportunity for advocacy and skills-transfer As noted in Lao PDR, they are often major contributors to relief operations although they may otherwise be involved in unrelated development-oriented projects

There are hundreds of international and local NGOs operating at various levels of independence in East Asian countries Those in China, Thailand and Vietnam are perhaps under the most rigid control Major organizations related to humanitarian assistance and risk reduction in East Asia are the American Rescue Committee, CARE, Catholic Relief Services, CARITAS, CONCERN, ICRC, IFRC, International Rescue Committee, Lutheran World Service, Seventh Day Adventist World Services, World Concern, and World Vision

4 5 Country-Specific Donor Programs

Burma The Asian Development Bank has made no loans to Burma since 1986 At the present time most Western governments currently restrict assistance, except in the form of humanitarian aid UNDP, IFRC and the Norwegian government support disaster management training initiatives ADPC has had few Burmese in its courses, primarily because of a lack of financial support to prospective participants

Cambodia Total humanitarian donations during and following the 1991 floods totaled US$6 5 million from a variety of donors The co-donors of Japan, UNHCR, Sweden, USA, Australia, Netherlands, UK and Finland funded a number of small-scale, quick impact projects to assist the very poor, provide rapid rehabilitation of irrigation structures damaged by the flood UNICEF sponsored clean water projects, UNDRO, UN Coordination of Kampuchean Humanitarian Assistance Program (OSRSG), UNDP, and WFP represented other UN agencies involved in direct assistance of relief and rehabilitation Japan was by far the largest donor with US$1 36 million in humanitarian assistance in 1991 (medical assistance, NGOs support through OSRSG) Some 15 NGOs, including World Vision, Lutheran World Service, CARITAS and American Rescue Committee were active in the flood relief effort

Working relationships with the ADB, the World Bank, the International Monetary Fund (IMF), may now provide the financial resources necessary for long-term stabilization of Cambodia's economy Multilateral donations for 1993-1994 total US$879,600,000 and include pledges by ADB, EEC, UNDP, UNESCO, UNICEF, and the World Bank The majority of ADB assistance is directed toward the rehabilitation of transportation systems The EEC has funded a number of unspecified rehabilitation projects France was the only donor through EEC to earmark humanitarian assistance to Cambodia in 1986-1987 Noteworthy is the cooperation of UNDP with the ADB in supporting the planning process that led to the formulation of the National Program to Rehabilitate and Develop Cambodia

Bilateral donation pledges for reconstruction and rehabilitation of Cambodia made at the 1992 Tokyo conference totaled US$625,800,000 - bringing the total commitment of all donors to over US$1 6 billion These pledges came from over 25 countries, with the following projects aimed at humanitarian assistance and risk reduction 1) community development projects by Australia, 2) community development projects through the Canadian-Cambodia Development Program to Canadian NGOs, 3) rehabilitation of water and electricity supplies in Battambang by Italy, and 4) port and road rehabilitation, plus rood for internally displaced persons by Japan

China With an annual loss of US$11 5 billion to disasters (3 3 percent of the GNP), China is compelled to seek external assistance at times of disaster An example of the outpouring of international support to humanitarian assistance to China at such times is the relief following the Anhui Floods of 1991, when 320 million Chinese were affected International organizations, such as EEC, FAO, UNDP, UNDRO and UNICEF, provided over US$1 3 million in food, material and in the conduct of relief activities Foreign governments provided an impressive US$86 million contribution, plus tons of food supplies and other relief material Hong Kong alone accounted for the largest share at US$83 million Burma, Germany, Pakistan, and Thailand donated over 106 metric tons of rice MSF/France conducted relief operations in affected areas and the Red Cross Societies of a number of countries made contributions

International support for prevention, mitigation, and preparedness activities has also been stepped up The ADB's current assistance is directed toward conserving natural resources, reducing poverty, and protecting the environment Loans specific to those areas plus others totaled US$1 05 million in 1993 (four projects on transportation and communications and one on environmental improvement)

Through the efforts and leadership of CNCIDNDR, a consolidated disaster management strategy for China has been developed and through it several disaster-related projects have been launched to strengthen disaster management in the country (Section 2) China will be seeking international assistance in their implementation The immediate objectives of these projects are to 1) perform nationwide natural disaster surveys and assessments, 2) develop a comprehensive management system for disaster prevention and mitigation in the Chinese context, 3) promote continued national development, 4) perform natural disaster monitoring and information analysis, 5) develop a disaster management data base, 6) perform disaster risk assessments, 7) establish a national center for disaster management, and 8) promote disaster management capability

The UNDP is a particularly active partner in assisting China in realizing funding and implementation of those projects as evidenced the joint China Disaster Reduction Planning project (CPR/91/714/C/13/99) which seeks to implement a comprehensive national strategy for disaster reduction China is relying on the political and economic strength of the CNCIDNDR and seeks to facilitate donor activity through that agency or the UN DMT All humanitarian assistance and risk reduction efforts in China are coordinated through UNDP

Laos Although noted for its aid dependence, minimal humanitarian assistance has been provided to Lao PDR PMP activities have similarly been of a limited nature Most activities focus on peripheral, and often important (to disaster preparedness and mitigation), activities For example, the ADB has two projects both on transport and communications The World Bank assisted the government of Laos in developing a National Environmental Action Plan

In direct relief activities, the World Food Program has been the main agency of assistance to flood and drought in the provision of foodstuff and other relief supplies The European Economic Community provided 2 3 million ECU for food assistance following the drought of 1983 The Japanese (JICA) also provided some relief items in an unspecified amount NGOs in the field working on community development and refugee resettlement projects often serve as the immediate responders to crisis

In an effort to create government support and assist in more direct coordination of disaster management activities, the Lao Red Cross, the IFRC, along with the Thai Red Cross and ADPC, conducted an awareness raising workshop in 1994 in Vientiane That workshop was particularly useful in that it helped identify problems in disaster management in Lao PDR, as necessary first step to solutions

The EEC has also been involved in a flood protection and swamp reclamation project in the Vientiane flood plain in cooperation with the Irrigation and Drainage Department, Ministry of Agriculture, Forestry, Irrigation and Cooperatives and the Municipality of Vientiane EEC's contribution, in the form of a grant, was for purchase of construction equipment and imported materials

Other donors in unspecified projects re noted to be Switzerland, Thailand, Australia, France, Germany, and the United Kingdom

Mongolia Although aid coordination is becoming an increasingly important issue in Mongolia, that country has a weak mechanism for cooperation with international organizations and foreign governments The Government of Mongolia rates itself as a poor participant with international agencies on natural disaster reduction issues [20] Slow disbursements have created concern among some donors No list of prioritized needs exists However, the government welcomes initiatives that would strengthen the necessary cooperation and coordination because it recognizes the potential for paralysis in disaster reduction initiatives The National Development Board has the mandate to coordinate external assistance, formulation of government policies and priorities regarding the economic, social and technological development of the country

The UNDP is assisting the government in undertaking a comprehensive needs assessment, supporting external assistance information systems, and organizing consultations for an on-going National Technical Cooperation Assessment The agency is also providing Mongolia with Western expertise and products The UNDP also funded the development of a biodiversity and conservation master plan and, in cooperation with UNCED, a National Environmental Plan in 1993

For 1992, a total of US$325 million in aid, loans and assistance was provided, primarily from Japan (US$68 million), the US (US$35 million), Republic of Korea (US$15 million) Germany (US$9 million), UK (US$5 million) and EEC (US$5 million)

In 1993 and 1994 ADB's loan programs in Mongolia were been directed at environmental impact assessment and monitoring procedures, afforestation and improvement of forest management, the use of GIS in environmental management and in promotion of efficiency in the industrial sector through policy and institutional reform However, France halted its funding for remote sensing activities because of the government's lack of funds

Since 1992, both the US Department of Agriculture and the Australian government have funded projects carried out through UNDP, FAO and/or WHO The Australian government has signed a Memorandum of Understanding that provides humanitarian aid to women and children through health-related activities

The UNDP estimated that international contributions and assistance following cold weather and heavy snow fall in 1992-1993 totalled US$1 16 million The funds came from 13 countries, four UN agencies and three international NGOs China, Japan and Vietnam were noted as the major contributors

Thailand Donor support in the Kingdom has dropped off markedly with its rapid economic development Along with the US, Canada, Australia, the United Kingdom and others are reducing or terminating loans and grants of aid The ADB has no current PMP or humanitarian assistance programs in Thailand

---

[20] Government of Mongolia, 1993, "Detailed National Report Mongolia" IN IDNDR Mid-Term Review and the 1994 World Conference on Natural Disaster Reduction

The UNDP recently completed a project to recommend strategies for strengthening disaster management in Thailand and is awaiting approval of funding from headquarters in New York It is anticipated that those funds will be insufficient and requests will be made to the international donor community Although recommendations were extensive only the following limited projects are currently proposed, most in relation to the current concern over industrial safety in the country 1) integrated hazardous waste management plan, 2) training in hazardous waste management, 3) management of information, 4) national and regional disaster action plans focussing on industrial accidents, and 5) public awareness

The Swedish and Australian governments have been particularly involved in hazardous chemical management, fire fighting, and chemical safety handling, in programs with the Port Authority of Thailand, Ministry of Interior and Ministry of Industry ADPC provided process safety management training to Thai safety officers in 1994 and continues to accept Thai participants to its disaster management training courses

Many of NGOs involved in the refugee relief operation of 1979-1993 have left the Kingdom or are using the country as spring-board for activities in Burma, Laos, Cambodia and Vietnam

Vietnam As with Mongolia, the former Soviet Union was the largest donor to Vietnam But beginning in the late 1980's support dropped dramatically Current assistance is primarily in the form of trade For over ten years Sweden, Finland and Australia have provided significant grants Since 1991 there has been a marked increase in the number of bilateral donors Especially of note are Japan and the Republic of Korea Specific funders for disaster management related activities include Australia (infrastructure development, training), Kuwait (rehabilitation of irrigation and drainage structures), and the USA with limited humanitarian assistance The ADB and the World Bank re-instituted funding projects in Vietnam in 1993

UN agencies, however, have been the most active in specifically disaster-related project funding [21] The WFP is a major provider of food aid for disaster relief activities The agency also is involved in tree planting and construction of dikes in reforested and typhoon-damaged areas UNHCR continues support to refugees from Cambodia

---

[21] The following is a partial list of the UN's disaster related projects in Vietnam 1) Institute for Water Resources Research (UNDP VIE/80/021) 2) strengthening hydrometeorological services and typhoon forecasting (UNDP VIE/80/51 with WMO), 3) disaster prevention in Binh Tri Thien Province (UNDP VIE/85/019) 4) water management in Thai Binh province (UNDP VIE/86/001 with FAO) 5) coastal hydrodynamics (UNDP VIE/87/020) 6) Mekong Delta Master Plan (VIE/88/031 with World Bank), 7) agricultural sector review (UNDP VIE/88/033 with FAO), 8) forestry sector review watershed management (UNDP VIE/88/037 with FAO), 9) water resource university (VIE/88/007), 10) training in disaster-resistant construction techniques (UNDP VIE/89/004 with UNCHS), 11) national plan for environment and sustainable development (UNDP VIE/89/021 with SIDA and IUCN) 12) rehabilitation in Thanh Hoa Province following Typhoon Living (UNDP VIE/89/035 with UNCHS), 13) Red River Delta Master Plan (VIE/89/034), 14) rehabilitation ad upgrading of dikes and canal systems in coastal areas of South and central QN-DN Province (WFP 4125/G 1990) 15) protection against typhoons in Nghe Tinh Binh Tri Thien and Quang Nam-Da Nang provinces (WFP 4126/Q 1990) 16) conservation training and biodiversity action plan (VIE/91/G31 with Global Environmental Facility World Wildlife Foundation IUCN), 17) sea dike engineering services (VIE/92/023), 18) flood emergency aid (UNICEF Strengthening PHC Network project 92-93), 19) flood emergency aid (UNICEF Household Food Security Project 92-93) 20) flood emergency aid (UNICEF Rural Water Supply and Environmental Sanitation Project 92-93) 21) flood emergency aid (UNICEF Alternative Basic Education 92-93), 22) improvement of environment (FAO/UNDP) and 23) rehabilitation and upgrading of sea dikes (WFP 4617/Q 1993)

Some 145 NGOs have established relationships with counterpart agencies and institutions in Vietnam Previous support focussed on humanitarian assistance such as food and shelter for disaster victims, but that direction is changing toward more long-term development schemes

International NGOs working in Vietnam include the IFRC (through the Vietnamese Red Cross), which participates in the UN DMT, provides logistics and stockpiling of material to flood-prone areas and conducts training and district level disaster response exercises (IFRC/CNRC DPP/93)

Vietnam recognizes that it should not accept humanitarian assistance in an open-ended manner and believes in careful control rigorous feasibility studies, priorities, coordination between agencies and monitoring Transference of foreign expert experience by way of training Vietnamese counterparts is often a required part of external aid projects The Aid Reception Committee (AIDRECEP) monitors the flow of aid to Vietnam

4 6 Conclusion

The most visible form of donor assistance is through direct relief and response activities the provision of money, foodstuffs, and materials related to stabilizing stressed populations Perhaps the most beneficial of all relief items is cash, to be used by the recipient to purchase necessary items following valid needs assessments Although inadequate and infrequent, the economic assessments of mitigation that have been completed suggest major benefits from the imposition of both structural and non-structural mitigation measures on development projects Clear evidence in both the Philippines and Vietnam show loss reduction where preparedness activities, such as warning systems for typhoons, are clearly understood The use of foreign armed forces (e g the US) to facilitate disaster relief was particularly effective in Iraq and Bangladesh, but has not been utilized in the seven target countries Perhaps only Cambodia would be receptive to such effective means of relief provisioning

Donors' greatest strengths lie in the observed readiness to extend help when it is needed, the direct contribution of commodities in rapid fashion, and in some instances, inculcation of required and effective mitigation and prevention measures in development projects Much new technology is needed and welcomed in some developing countries, if adapted to the local culture and social needs

Weaknesses in donor programs include the familiar refrain "donor-driven," those dictates by the donor on how and where funds are to be spent and under what conditions Such dictates may be more in the political or economic interest of the donor than of benefit to the recipient Inappropriate commodities and out-of-date foodstuffs and drugs still find their way into relief operations Requiring Western technology or one's own country's resources, including personnel, in development projects may promote strategies or activities that are counter to the local culture or stage of economic growth or social development

Through the IDNDR a series of recommendations have been formulated, directed at the donor community, to further the effective utilization of grants and loans for national humanitarian assistance and disaster management

- The international development assistance community and individual national bilateral assistance programs share a responsibility for a renewed commitment to support disaster awareness and reduction measures in affected developing countries

- Periodic donor pledging conferences sponsored by aid consortia should be used as venue for the presentation of explicit disaster reduction plans of action to be incorporated in national development programs The 1992 conference in Tokyo serves as an example

- International and regional development lending institutions can be called upon to provide more leadership, encouragement and capital to realize risk reduction measures in the national development process

- More active promotion can be done to identify and then engage various private sector sponsorship programs or activities to further the goals of the International Decade for Natural Disaster Reduction

- If a greater degree of commitment is anticipated from local communities and the public, a more conscientious effort is necessary to include their participation in the programs of the Decade

SECTION 5

LONG-TERM HUMANITARIAN ASSISTANCE NEEDS IN THE REGION

The need for USAID's role in relief and rehabilitation assistance, in the inculcation of prevention, mitigation and preparedness into development programs, and aid in times of post-crisis transition will continue beyond the five-year time frame of the RSM/EA Strategic Plan With the possible exception of China and Thailand, the East Asian region will continue to look to developed countries for technical, economic and social support

The following represent those assistance needs that will persist for the foreseeable future and probably well into the 21st Century

- There is likely to be a continuing need to provide humanitarian assistance through relief and response As Thailand and China move into stronger economic positions, the need for external aid, except in the event of extraordinary disaster events, will be minimized or unnecessary However, Burma, Cambodia, Laos, Mongolia and Vietnam will most probably still require significant international assistance, even in the face of modest disasters Of particular concern is Cambodia, with its history of chaos and current fragility Burma and Laos may yet face tests of governance that may set them on transitional paths Although Vietnam will develop economically, those very developments will be vulnerable to the inevitable floods and typhoons

  USAID will continue to be an international focal point for humanitarian assistance through direct relief aid beyond the five-year term of the RSM/EA Strategic Plan Such assistance stands to benefit the US through the demonstration of the charity inherent in the American culture and its eagerness to promote democracy

- There is likely to be a continuing need to provide risk assessments at country and provincial levels throughout the region Periodic risk assessment updates, including hazard, vulnerability and management assessment for each of the seven countries, as well as for adjacent countries are needed to assist in amending disaster management strategies This assistance should also include other regional countries in which a common disasters or hazards may have a direct impact

  The need for routine assessments is emphasized by the following example Concern over Thailand's drought problem dropped dramatically as a result of the above-normal rainfall during the 1994 rainy season Prior to this rain drought ranked fifth on Thailand's list of hazards After the rain, it dropped to tenth even though there is no guarantee drought conditions will not return next year National disaster management plans need to be reviewed annually and policy changes affected as results of risk assessments indicate new management directions

If programs aimed at increasing technical competence are successful and resources are appropriately allocated in East Asian countries, external support will be minimal As new systems are developed for this important first requisite to effective disaster management, poorer countries of the region may require external funding

USAID's current initiative to create an Asian Urban Disaster Mitigation Program will help in reducing the need for external country assistance after the five-year time frame

- There is likely to be a long-term need to include disaster prevention, mitigation and preparedness measures in all development programs and projects The strength of the CNCIDNDR and VCNIDNDR is testimony to how well regional countries can control the implementation of prevention, mitigation and preparedness strategies into development projects Thailand will include disaster reduction as a necessary component of its next five-year social and economic development plan to begin in 1997 China and Vietnam, along with Thailand, may need no further external assistance in assuring appropriate risk reduction strategies in their development schemes in the near future

  UNDP will remain an important agency in most of the East Asian countries beyond the five-year RSM/EA Strategic Plan As the lead UN agency, it should continue to assure that appropriate PMP strategies are inculcated into development projects that receive international funding This assistance will be particularly important for Burma, Cambodia, and Laos, as they continue to overcome difficulties in governance and/or economic development

- There is likely to be a long-term need for efforts to strengthen disaster warning systems Through cooperation with UNEP-GRID, WMO, UNEP, ILO and UNDP and other international agencies, regional countries can continue to expand and enhance their early warning, prediction and monitoring systems Substantial changes in monitoring and telecommunications technologies in the next few years will dictate new systems that may require external funding for less developed countries

- There is likely to be a continuing need to strengthen emergency response at the local level Case histories show that 90 percent of all relief efforts are carried out by the affected people The physical stockpiling of equipment and raw materials in areas adjacent to disaster-prone zones and training at the local level in disaster preparedness and response is required The Philippines and Indonesia now recognize the importance of local level disaster management and are currently devolving their programs to the districts and local communities If regional countries fail to provide services necessary for local self-help, external support will be needed

  Effective programs aimed at local self-sufficiency will provide the maximum benefit to communities in disaster-prone areas The type of central government, however, will dictate how well that self-reliance is carried out

- There is likely to be a long-term need to enhance human resources and alleviate poverty Continued education, training and development of new personnel in disaster management related occupations will be required Major benefit can come from support of regional institutions that provide specialized training, such as that carried out by ADPC, PAGASA and Rorkee

Information is required by all decision-makers, by funders and by policy makers The ready availability, quality and quantity of information will increase with advances in MIS, GIS and telecommunications

It is estimated that 95 percent of deaths from disasters occur among the world's poorest countries [22] The poor are the least able to support and defend themselves and the most probable impact targets of disasters Programs aimed at poverty alleviation and population growth reduction will be required for years to affect change

Training and information acquisition and dissemination, along with human resource development programs and family planning aimed at the poor will be required beyond the five-year term of the RSM/EA's Strategic Plan Regional centers to coordinate these activities are recommended and their funding and support should come from participating countries, rather than international donors.

[22] Kreimer, A and M Munasinghe, 1991, *Managing Natural Disasters and the Environment*, Washington DC, The World Bank

ANNEX A

REFERENCES

Asian Disaster Preparedness Center, 1991, *Report of Mynamar Delegation to Workshop on Improving Cyclone Warning Response and Mitigation*, Bangkok ADPC for Government of Union of Myanmar, Myanmar Red Cross, pp 11

- -, March 1994, *Critical Issues for the Realization of IDNDR Objectives in South and Southeast Asia* (An Independent Report by an Ad Hoc Committee of Asian Professionals for the IDNDR Secretariat), Bangkok Asian Disaster Preparedness Center, pp 31 including Annexes and figures

- -, 1994, *Chair's Summary Report Regional Seminar on Policy and Institutional Requirements for Disaster Management in Asia and the Pacific*, Bangkok prepared for DB by ADPC

Asian Business, August 1994, "Sleepy Laos begins to wake," *Asian Business*, pages 44-45

Bangkok Post, 29 November 1994, "Hanoi, Phnom Penh want to host Mekong Body," Bangkok Bangkok Post, Home and Regional News, pg 8

Brennan, T , J Burke, J Good, 1994, *OFDA Mission Report Findings and Recommendations for the 1994-1995 Heating Season Energy Crisis in Mongolia Preparedness and Response Strategies*, Wisconsin Interworks, pp 29, including annexes

Cambodia Development Resource Institute, July 1994, "Capacity Building The Essential Link in Cambodian Development," *DCRI Newsletter*, Phnom Penh CDRI , Number 7

- -, 1994, *Annual Report, July 1993 - June 1994*, Phnom Penh Cambodia Development Resource Institute, pp 33

Chinese State Seismological Bureau, 1992, *Estimating Losses from Earthquakes in China in the Forthcoming 50 Years*, Beijing SSM/Department of Seismic hazard prevention, pp 60

Chinese National Committee for the International Decade for Natural Disaster Reduction, December 1993, *National Report of the People's Republic of China on Natural Disaster Reduction*, Beijing CNCIDNDR Committee, pp 19

- -, 1994, Disaster Reduction in China, Beijing CDCIDNDR, pp 48

Cosgrove, C , 1994, *Laos Seminar Notes Disaster Preparedness in Myanmar*, Yangon IFRC Delegation, pp 19

Department of Humanitarian Affairs, 1994, *Strategy and Action Plan for Mitigating Water Disasters in Viet Nam*, New York and Geneva DHA, pp 166

Disaster Management Training Program, 1994, *UNDP/DHA Disaster Management Training Program Country Workshop for Thailand*, Bangkok UNDP DMTP, pp 62

Development Training and Communication Planning, 1994, *CAMBODIA Report of the Disaster Management Training Program Country Workshop National Conference and UN-DMT Workshop*, Manila UNDP/DTCP, pp 84, including annexes

Economist Intelligence Unit, 1993, *Country Report-Indochina Vietnam, Laos, Cambodia*, London The EIU , pp 71, plus appendices

Economic and Social Development Committee for Asia and the Pacific (ESCAP), 1984, *Damage Information Compilation Systems in the typhoon Committee region*, Bangkok ESCAP, pages 7-18

- -, 1988, *Damage Information Compilation Systems in Burma, Maldives, Pakistan and Sri Lanka*, Bangkok ESCAP, Burma at pages 5-11)

- -, 1991, *Natural Disaster Reduction in Asian and the Pacific Launching the IDNDR*, Vol 1, Bangkok Economic and Social Development Committee of Asia and the Pacific, pp 242

- -, 1994, "Assessment of the State of the Environment in Myanmar," From Regional Meeting on the State of the Environment in Asia and the Pacific, Yangon

- -, 1994, "State of the Environment in Mongolia, 1990-1993," From Regional Meeting on the State of the Environment in Asia and the Pacific

Far Eastern Economic Review, 1991, *Asia 1991 Yearbook Laos*, pages 150-153

- -, 27 October 1994, "Disasters Plague China Floods and Drought Vex its Leaders," *Far Eastern Economic Review*, pages 24-30

Gallimore, R , "European Community's Disaster-related Assistance," *Disaster Mitigation in Asia and the Pacific* Manila Asian Development Bank, pg 326-327

Government of the Union of Myanmar, 1994, *National Report on Environment and Development of the Union of Myanmar*, Yangon GUM, pp 24

Heyman, B B , C Davis, P F Krumpe, 1991, "An Assessment of Worldwide Disaster Vulnerability," *Disaster Management*, 4(1) 2-13

Hpu, H M , 1994, "Disaster Management in Myanmar," in *Cambodia Report of the Disaster Management Training Program Country Workshop*, Manila UNDP/DTCP, Appendix C

Interim Committee for Co-ordination of Investigations of the Lower Mekong Basin, 1988, *Annual Report 1988*, Bangkok ICCILMB, pp 50

International Decade for Natural Disaster Reduction, 1990, *IDNDR International Conference 1990 Japan*, Tokyo Japanese National Committee for the IDNDR, pp 585

- -, 1994, *Statistical Information on National Activities for Natural Disaster Reduction*, Tokyo Japanese National IDNDR Committee, pp 39

International Federation of Red Cross and Red Crescent Societies (IFRC), 1994, *Natural Disaster Summary*, Geneva International Federation of Red Cross and Red Crescent Societies, pp 235, including appendices and plates

- -, 1994, *World Disasters Report*, Geneva International Federation of Red Cross and Red Crescent Societies

Kaye, L , October 27, 1994, "China The Reckoning," *Far Eastern Economic Review*, Cover Story, pages 24-30

Kerang, L and L Xianchao, February 1992, "Drought China's greatest natural disaster," *Drought Network News*, pages 3-6

Lao People's Democratic Republic, 1990, *Tropical Forestry Action Plan Executive Summary*, Vientiane LPDR Ministry of Agriculture and Forestry

- -, 1993, *Draft Environmental Action Plan*, Vientiane LPDR Organization for Environment, Science and Technology

Lao Red Cross, 1994, *Summary Report Disaster Preparedness Awareness Raising Seminar*, Vientiane Lao Red Cross/International Federation of Red Cross and Red Crescent Societies, pp 18

Kreimer, A , and M Munasinghe, 1990, *Managing Natural Disasters and the Environment*, Washington DC World Bank, pp 215

Mongolian Government, December 1993, *IDNDR Mid-Term Review and the 1994 World Conference on Natural Disaster Reduction - Detailed National Report Mongolia*, Ulaanbaatar Government of Mongolia, pp 51, plus annexes

Munich Reinsurance, 1988, *World Map of Natural Hazards*, Germany Munich Reinsurance Co , pp 454

Nation, October 13, 1994, "Domestic rice needs could curb exports after floods in VN," Bangkok the Nation, A2

O'Conner, R A , 1989, "From Fertility to Order, Paternalism to Profits the Thai City's Impact on the Culture-Environment Interface," in *Culture and Environment in Thailand*, Bangkok Siam Society, pages 393-414

Peoples Insurance Company of China (PICC) and Beijing Normal University, 1992, *Atlas of Natural Disaster in China*, Beijing Science Press, pp 166

Mekong Committee Secretariat, 1992, Thammongkol, T , and L H Ti, 1991, *Flood Disaster Reduction of the Lower Mekong Basin*, Bangkok Mekong Secretariat, pp 11, plus tables and figures

Muscat, R J and J Stromseth, 1990, *Cambodia Post-Settlement Reconstruction and Development*, New York East Asian Institute, pp 142

Royal Cambodian Government, March 1994, *National Program to Rehabilitate and Develop Cambodia*, Phnom Penh Royal Cambodian Government

Royal Thai Government, 1994, *Thailand National Summary Report IDNDR*, Bangkok Department of Local Administration, pp 16

Socialist Republic of Vietnam, 1992, *Proceedings of the International Workshop on Flood Mitigation, Emergency Preparedness and Flood Disaster Management*, Hanoi SRV and UNDP, pp 110

- -, 1993, *Vietnam A Development Perspective*, Hanoi SRV, pp 99

- -, 1994, A1 Disaster Preparedness and Management Disaster Management Unit (VIE/93/031, Hanoi SRV and UNDP, pp 12 plus annexes

- -, 1994, *Strategy and Action Plan for Mitigating Water Disasters in Vietnam,* Hanoi SRV and UNDP, pp 165

Tianchi, L and W Shumain, 1992, *Landslide Hazards and Their Mitigation in China*, Beijing Science Press, pp 84, with plates

Typhoon Committee, 1988, *Flood Loss Prevention and Management in East Asia*, Bangkok World Meteorological Organization/ESCAP Typhoon Committee, pp 104, plus annexes

United Nations Development Program, 1992, *The Flood Disaster in China, 1991 A Case Study of UN System Co-ordination*, Beijing UNDP, pp 6

- -, 1993, *Human Development Report*, New York UNDP

- -, 1994, *Strengthening Disaster Management Strategies in Thailand*, Bangkok United Nations Development Program (THA/88/004), pp 40, plus annexes

- -, 1994, *Emergency Relief and Disaster Mitigation in Viet Nam*, Hanoi Viet Nam United Nations Disaster Management Team, pp 19, plus appendices

- -, 1994, *UNDP in Cambodia Status and Perspectives* Phnom Penh UNDP

- -, 1994, *China Disaster Reduction Planning, Humanitarian Assistance and Disaster Management* (Project Document CPR/91/714/C/13/99), pp 50

- -, 1994, Vietnam Technical Assistance in Transition, Hanoi UNDP, pp 50

United Nations Disaster Relief Organization, 1982, *Report of the International Seminar on Disaster Preparedness and Relief*, Geneva United Nations Disaster Relief Organization, pp 37

- -, 1990, *Disaster Management Needs Assessment in China*, pp 19 plus annexes

United States Department of State, October 1993, *Background Notes Mongolia*, Washington DC Bureau of Public Affairs, Vol 5(1)1-6

United States Agency for International Development (USAID), November 1993, *USAID Assistance Strategy for Mongolia, FY 1994-1998*, Ulaanbaatar Office of the USAID Representative in Mongolia, pp 60

- -, March 1994, "Providing Humanitarian Assistance and Aiding Post-Crisis Transitions USAID's Strategy," *Strategies for Sustainable Development* Washington DC USAID

- -, 1994, *Asian Urban Disaster Mitigation Project*, Bangkok RHUDO, Project Identification Document (PID), pp 16 plus annexes

United States Department of Agriculture (USDA), November 1990, *People's Republic of Mongolia Parachute Maneuvering Simulator Assistance Project*, Missoula USDA Forest Service, Project No , 100217, pp 12

US Office of Foreign Disaster Assistance, 1993, *Disaster History*, Washington DC US OFDA

Vietnamese National Committee for the International Decade of Natural Disaster Reduction, 1994, *Nation Report of the Socialist Republic of Vietnam* (prepared for the IDNDR Mid-Term Review and the 1994 World Conference on Natural Disaster reduction), Hanoi National Committee for IDNDR of Vietnam and the Central Committee for Flood and Storm Control (CCFSC), pp 24

World Meteorological Organization, 1994, *Meteorological and Hydrological Risk Management* Geneva UN WMO, Report No TCP-32 (WMO/TD-No 591), pp 43

ANNEX B

DISASTER STATISTICS FOR SELECTED EAST ASIAN COUNTRIES

Statistics are recorded for 1975 to date Significant events, in which tens of thousands of lives were lost, which occurred prior to that time period are discussed in individual country profiles Sources of statistics are varied and include newspaper accounts Only the most significant references are cited

Table B 1 Disaster History Report for Burma

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Civil Conflict				
Rangoon	1988	1,400	160,000	n r [3]
Fire				
Country-wide	1979	n r	30,000[2]	11,000,000
Taungwingy, Mandala	1981	13	63,588[2]	10,000,000
Rangoon	1982	0	12,700[2]	1,200,000
Rangoon	1987	1	2,500[2]	300,000
Tenasserim	1988	0	22,008[2]	46,000,000
Mandalay	1989	1	9,500[2]	34,300,000
Meiktila	1990	0	7,984[2]	2,500,000
Meiktila, Mandalay	1991	21	25,275[2]	80,256,000
Myingyan	1993	n r	8,273[2]	n r
Flood				
Central Burma	1974	n r	1,400,000[2]	n r
Arakan	1977	3	3,000[2]	n r
Kachin	1979	n r	10,000	n r
Central Burma	1991	23	360,000[2]	80,000,000
Typhoon				
Southwest Burma	1982	11	36,000	n r
Major Accidents				
Ferry capsized	1987	100	n r	n r
Ferry sunk	1990	200	n r	n r

[1] Persons injured, [2] Persons affected, [3] n r = not reported Source OFDA, 1993

Table 2 Disaster History Report for Cambodia

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Civil Conflict				
Khmer Rouge Regime	1975-1979	1,000,000 total	7,300,000 total	n r [3]
Drought				
	1987	n r	n r	n r
Epidemic				
Cholera	1992	60	700[1]	n r
Fire				
Phnom Penh	1974	130	10,000[2]	n r
Flood				
10 Provinces	1991	3+	650,000[2]	n r
Central Provinces	1994	n r	12,000	n r
Typhoon				
Typhoon Fred	1991	100+	650,000	3,000 homes 143,000 ha rice

[1] Persons injured, [2] Persons affected, and [3] n r = not reported Sources OFDA, 1993, ADPC, 1994

Table 3 Disaster History Report for China

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Cold Weather				
Northwest	1986	2	30,000[2]	1 million animals
Western China	1989	67	8,000[2]	n r[3]
Tiberan Area	1992	0	175,283[2]	200,000 animals
Drought				
Anhwei, Kiangsu	1978	0	6,000,000[2]	n r
6 Provinces	1988	1,400	49,000,000[2]	942,887
Earthquake				
Haicheng/Liaoning	1975	300	n r	n r
Tangshan	1976	242,769	164,000[1]	7,000,000
Jiangsu, Inner Mongolia	1979	41	4,000[1]	n r
Sichuan	1981	150	28,140[1]	n r
Shandong	1983	36	n r	n r
Yunnan	1985	22	300[1]	n r
Southern China	1988	939	1,000,000[2]	269,000,000
North China	1989	33	102,800[2]	n r
Qinghai	1990	126	5,000[2]	n r
Tibet	1992	0	16,000[2]	n r
Epidemic				
Shandong rotavirus	1978	0	1,000	n r
Fire				
Heilongjiang forest fire	1987	191	56,092	110,000,000
Flood				
Minjiang River	1980	38	40,000[2]	n r
Central and South China	1981	1,311	1,500,000[2]	1,210,000,000
Shaanxi, Sichuan Province	1981	260	107,000[2]	n r
Guangdong, Shandong	1982	764	22,000,000[2]	7,500,000,000
Yunnan	1985	283	14,000[2]	n r
Lianing	1985	200	1000's affected	350,000,000
Jilian, Heilongjian	1986	447	1,200,000[2]	n r
Liaoning, Jilin, Heilong	1986	80	2,000,000[2]	1,500,000,000
Guangdong	1987	92	590,000[2]	n r
4 Provinces	1988	1312	22,584,500[2]	1,063,564,000
6 Provinces	1989	2,000	100,000,000	2,789,000,000
4 Provinces	1990	443	31,590,000	803,000,000
Anhui, Jiangsu, Henan	1991	2,470	320,000,000[2]	7,500,000,000
Anhui, Jiangsu, Henan	1993	363	26,000,000[2]	n r
Gouhou dam burst	1993	290	30,000[2]	27,000,000

[1] Persons injured, [2] Persons affected, and [3] n r = not reported

Disaster History Report for China, Continued

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Landslides and Mudflows				
Yunnan Province	1980	284	n r [3]	n r
Gansu Province	1984	277	70,049	n r
Sichuan Province	1987	300+	n r	n r
Sichuan Province	1989	221	n r	n r
Major Accidents				
Ferry capsized	1983	147	n r	n r
Ferry capsized	1985	160	n r	n r
Ferry capsized	1986	100	n r	n r
Plane crash,boat accident	1988	281	n r	n r
Plane crash	1990	128	n r	n r
Bridge/mine accident	1991	170	n r	n r
Plane crash	1992	141	n r	n r
Major Storms/Tornado				
Fujian, Hunan	1983	329	11,000	n r
Guangdong, Fujian	1985	119	100,000	n r
Eastern China, Sichuan	1986	45	n r	3,200,000
Heilongjiang, Liaoning	1987	79	59,000	n r
Sichuan	1989	154	30,000,000	400,000,000
Hunan	1991	69	1,400,000	n r
Tibet, Hunan, Sichuan	1992	109	7,875,283	96,000,000
Typhoons				
Typhoon Joe	1980	188	n r	n r
Zhejiang	1985	177	100,000	100,000,000
Typhoon Peggy	1986	172	4,000,000	380,000 000
Typhoons (2)	1987	234	900,000	n r
Typhoon Kit	1988	6	51,000	n r
Typhoons Vera and others	1989	285	7,000,000	485,000,000
Typhoons (8)	1990	615	7,500,000	16,000,000
Typhoons	1991	n r	n r	1,200,000,000
Typhoon Polly	1992	146	55,000	282,000,000

[1] Persons injured, [2] Persons affected, and [3] n r = not reported Source OFDA, 1993

Table 4· Disaster History Report for Laos

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Flood				
Mekong River	1966	n r [3]	n r	n r
Mekong River	1971	n r	n r	n r
Mekong River	1978	31	459,000	n r
Mekong River	1984	14	"thousands"	n r
Mekong River	1991	n r	332,000	n r
Mekong River	1993	n r	n r	n r
Drought				
--	1977	n r	3,500,000	n r
Southern provinces	1988	n r	730,000	n r

[1] Persons injured, [2] Persons affected, and [3] n r = not reported Source OFDA, 1993

Table 5 Disaster History Report for Mongolia

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Blizzard and snow storm				
	1987-1988	6	n r [3]	10,000 livestock + property damage
	1991-1992	4	n r	500,000 livestock
	1992-1992	28	121,000	US$10,000,000,
Dust storm				
12 provinces	1991	4,000	n r	$9,250,000
Dornogobi Province	1992	7	1,200	800 livestock lost
Fire				
Steppe fire	1986	33	n r	1,000s of cattle
Forest fires	1990	n r	n r	US$110,000,000
Forest fire in Suhbaatar	1993	85% of pasture	n r	n r
Flood				
Floods	1991-1993	62	US$213,000	n r
Ulaanbaatar flash flood	1992	20+	US$500,000	n r

[1] Persons injured, [2] Persons affected, [3] n r = not reported Source OFDA, 1993

Table 6 Disaster History Report for Thailand

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Flood				
Bangkok only	1975	239	n r [3]	44,000,000
Southern provinces	1975	n r	3,000,000	45,000,000
N, NE, Central	1978	n r	1,628,000	400,000,000
Central, NE Thailand	1980	57	630,000	59,700,000
Bangkok	1982	n r	n r	43,720,000
Southern Provinces	1983	374	n r	301,600,000
Bangkok	1983	50	1,000,000	n r
Central Thailand	1986	39	27,780	7,200,000
Southern Provinces	1987	24	n r	264,000,000
Southern Provinces	1988	374	1,112,941	169,146,000
Southern Provinces	1992	2	1,400,000	7,200,000
Southern Provinces	1993	17	n r	4,280,000
Typhoon				
Typhoon Gay	1989	602	5,495	469,560,000
Typhoon Era & Lola	1990	38	2	293,040,000
Typhoon Fred	1991	27	17	69,800,000
Drought				
	1989	--	496,000	13,760,000
	1990	--	536,550	8,160,000
	1991	--	1,221,416	15,400,000
	1992	--	2,430,663	40,080,000
	1993	--	2,655,194	24,360,000
Refugee Influx				
Khmer refugees	1979	--	650,000	n r
Strong Wind/Storms				
	1981	55	n r	13,000,000
	1988	67	54	1,720,000
	1989	22	9	560,000
	1990	126	118	6,880,000
	1991	43	55	3,040,000
	1992	90	50	7,720,000
Fire (excluding Bangkok)				
	1988	77	230	53,520,000
	1989	63	208	26,880,000
	1990	154	293	59,600,000
	1991	45	84	75,200,000
Major Accidents				
Bangkok LPG Explosion	1990	91	97	n r
Klong Toey fire	1991	91	60,000	n r
Phang Nha truck explosion	1991	80	n r	n r
Kader Doll Factory fire	1993	187	n r	n r

[1] Persons injured, [2] Persons affected, [3] n r = not reported Source OFDA, 1993

Table 7 Disaster History Report for Vietnam

Disaster	Year	Annual Deaths	Annual Injured[1] or Affected[2]	Annual Loss in US$
Drought				
Northern Provinces	1987	--	n r [3]	n r
Flood Northern Vietnam				
	1974	237	204,000	n r
	1985	93	2,800,000	n r
	1990	131	n r	n r
Flood Central Vietnam				
	1980	94	628,000	n r
	1984	33	38,000	n r
	1986	165	n r	n r
	1992	55	7,500	n r
Flood Mekong Delta				
	1978	--	4,000,000	n r
	1991	21	270,000	n r
Major Accident				
Saigon (unspecified)	1981	177	564	n r
Fishing boat collision	1989	130	n r	n r
Tunnel collapse in mine	1991	300	n r	n r
Typhoon				
Red River Delta (Joe)	1980	130	3,165,000	n r
Central Vietnam (Ruth)	1980	164	250,000	n r
Typhoon Nancy	1982	70	1,300,000	n r
Several typhoons	1983	453	580,000	19,000,000
100 km E Hanoi	1984	21	1,094	n r
Binh Tri Thien, Thai Binh	1985	798	225,000	n r
Typhoon Wayne	1986	435	2,502	110,000,000
Nghia Binh, Phu Khanh	1987	101	225,000	28,000,000
10 Provinces	1988	121	1,320,000	n r
Nghe Tinh-Binh Tri Thien	1989	75	4,635,000	21,000,000
Central Vietnam	1990	31	500,000	17,000
Central Vietnam	1991	250	455,000	9,500,000
Nghia Binh	1994	134	650,416	n r

[1] Persons injured, [2] Persons affected, and [3] n r = not reported Source OFDA, 1993

ANNEX C·

RECOMMENDATIONS FOR STRENGTHENING DISASTER MANAGEMENT IN SELECTED EAST ASIAN COUNTRIES

C 1 Disaster Management Strengthening Strategies and Recommendations for Cambodia[23]

The National Disaster Management Organizational Structure

Council Members The top level responsible for decisions related to disaster management

National Committee for Disaster Management (NCDM) Chaired by the Deputy Prime Minister, with members from all Ministries, State Secretaries of environment, Rural development, Post and Telecommunications and Women's Affairs Responsible for recommending DM policies to the Council of Ministers and to implement policies

National Committee for Disaster Management Secretariat (NCDMS) The NCDM would be supported by this secretariat, with a chairperson appointed by the Council of Ministers Members would represent 1) disaster line agencies, 2) Committee for the Development of Cambodia, 3) UN DMT, 4) International Federation of the Red Cross (IFRC), 5) International Committee of the Red Cross (ICRC), 6) NGOs, 7) international non-government organizations (IGOs), and 8) International Office for Migration (IOM)

The NCDMS would 1) make policy suggestions to the NCDM, 2) be the operational arm of the NCDM to implement disaster management activities as directed by the NCDM, and 3) coordinate disaster management activities of member agencies The Secretariat would have no line authority over Provincial or District Committees for Disaster management, but would provide information collection and dissemination services to those committees

Provincial Committees for Disaster Management (PCDM) Chaired by the Provincial Governor, each committee would be responsible for implementing humanitarian assistance and disaster relief at the Provincial level Membership in the PCDM would include 1) all district governors in the province, 2) provincial representatives of disaster involved line agencies, and 3) a representative of CRC

Provincial Committees for Disaster Management Secretariats (PCDMS) PCDM would be supported by Secretariats with representatives from the same organizations as for the NCDMS The Secretariat would 1) make policy suggestions to the PCDM, 2) be the operational arm of the PCDM to implement disaster management activities as directed by the PCDM, and 3) coordinate disaster management activities of member agencies

---

[23] Source *Cambodia Report of the Disaster Management Training Program Country Workshop National Conference and UN-DMT Workshop*, 11-22 July 1994 NCO-1 Recommendations on Disaster Management)

District Committees for Disaster Management (DCDM) Chaired by District Governors, these would be the most probable response and reduction agencies The DCDM would be responsible for implementing disaster management activities at the district level Similarly supported by a Secretariat with representation as in the NCDMS

District Committees for Disaster Management Secretariat (DCDMS) Where possible, but not mandatory, a Secretariat to serve the DCDM would serve the DCDM with representatives of those agencies included in the PCDMS

Recommendations to Prevent Rapid and Slow Onset Environmental, Natural and Human Disasters

Toxic waste The Country Workshop participants strongly recommend that no permission be granted to any external organization, company, or national entity to use the territory of the country of Cambodia as a dump site for any form of toxic substance

Oil Spills The Country Workshop participants strongly recommend that any contract made between the Royal Government of Cambodia and oil and gas exploration companies include a provision that such companies will be responsible for and bear the costs of clean up of any oil spills resulting from their activity

Deforestation The Country Workshop participants, who are concerned about uncontrolled cutting of trees recommend that existing regulations related to the cutting of trees be strictly enforced and that any cutting that is done complies with the existing regulations related to minimizing the damage to the environment that results from logging activities

Priority Objectives - Human Resource Development and Other Aspects of Disaster

The following objectives were developed by Workshop participants as recommended priorities related to training and human resource development and other aspects of disaster management

Preparedness-Training Steps should include 1) central government personnel from disaster involved agencies are trained to conduct CVA (crisis vulnerability assessment) and to conduct CVA training for provincial and district personnel, 2) Comprehensive disaster management training is provided for responsible DMC personnel of all agencies involved in disaster management, and 3) disaster education curricula are developed for all levels (primary, secondary, university) and teachers are trained to teach these curricula

Preparedness - Other Priorities Insure that government agencies, local NGO personnel and volunteers in all provinces/cities are capable of conducting accurate CVA

C 2 Disaster Management Strengthening Strategies and Recommendations for China[24]

Immediate Objective 1

To formulate a national mitigation strategy to direct the coordinated implementation for comprehensive, multi-sectoral national disaster reduction programs through the Year 2000

Output 1 A National Disaster Reduction Plan (NDRP) The plan should be adopted by the national development planning authorities and incorporated into the Ninth-Five-Year-Plan from 1996 to 2000 by allocation of national resources

Activity 1 Define, research, and draft a National Disaster Reduction Plan under the coordination of the CNCIDNDR and the State Planing Commission

Activity 2 Critique, finalize and obtain official acceptance for the NDRP from the State Council in conjunction with the development of the prioritized project proposals Official endorsement should proceed concurrently with the process of critique and revision of the Plan by CNCIDNDR ad the State Planning Commission along with relevant authorities in the process from months 6-10 A workshop may further strengthen the activity by seeking broad comments and recommendations from national and international agencies

Activity 3 Publish the NDRP plan, and disseminate it widely through domestic and international channels, in conjunction with the promotion of a group of interrelated project proposals as stated in Output 2 1

Output 2 A group of interrelated prioritized project proposals The proposals should outline the implementation of activities designed to achieve NDRP objectives and to be supported by national and international resources Two international experts and CNCIDNDR will formulate the list of projects and the UN DMT will assess donor interests and advise financial and technical capabilities of UN or other international agencies

Activity 1 Draft programming and administrative practices that will set principles ad describe process for the development and assessment of national priority detailed process for the development and assessment of national priority mitigation activities and projects in support of the NDRP as elaborated further in Annex 3 They will contribute to the development of enhanced operational and organizational procedures necessary for the promotion of systematic resource generation and allocation to jointly determined critical activities which advance the NDRP

Activity 2 Produce a unified program of complimentary prioritized project proposals based on scrutinization of on-going and pipeline projects and existing and potential

[24] Excerpted from UNDP/PRC, 1994 *China Disaster Reduction Planning Strategy* (CPR/91/714/C/13/99) and CNCIDNDR 1994, *National Report of the People s Republic of China on Natural Disaster Reduction*)

financial resources to realize specific national institutional, technical, and management capability objectives of disaster mitigation

Immediate Objective 2

To increase the institutional capacity and management support systems of CNCIDNDR to promote and to coordinate integrated, inter-ministerial disaster mitigation programs development

Output 1 An organizational development plan for a two year period The plan should identify key functional responsibilities required of CNCIDNDR to institutionalize its coordination and administration responsibilities for the implementation of national mitigation strategy

Activity 1 Identify the functions, institutional role, operational relationships, informational requirements of the CNCIDNDR for a two year period, to coordinate the elements of a national mitigation strategy

Activity 2 Prepare a projected staff roster of CNCIDNDR and its affiliated members to specify essential professional positions, functions, expected qualifications, and further staff development needed within two years to manage the coordination and management of a national mitigation program

Activity 3 Identify key CNCIDNDR staff to participate in selected disaster management training programs keyed to specific organizational objectives

Activity 4 Compile, organize and consolidate national, multi-sectoral information obtained for the initial planning, coordination and management of the national disaster reduction strategy

Activity 5 Identify, and enable Chinese and foreign participation in professional exchange relationships with specific internationally recognized institutions and professional fora The opportunities of more Chinese participation will provide dual benefits of presenting Chinese experiences to a wider audience and in gaining greater exposure for Chines experts to current international developments contributing to national disaster mitigation policies The opportunity for foreign experts to visit China will provide opportunities for technical assistance in specific areas and brief training activities

C 3 Disaster Management Strengthening Strategies for Mongolia[25]

The US Embassy in Ulaanbaatar should emphasize to the highest levels within the Government of Mongolia its concern that an energy crisis is imminent and should recommend that immediate mitigation measures are necessary to avert an energy crisis

The Government of Mongolia's Ministry of energy and the Civil Defense should immediately initiate a program in rigorous program of inspection and monitoring of all segments of the energy production chain (mining, transport, and power plant operation) to guard against accident, fires,a and equipment breakdown

Civil Defense, in close coordination with the Ulaanbaatar Water board, Ministry of Infrastructure (Transport Department), Trade and Industry, Red Cross, Ministry of health, and Policies, should prepare a coordinated plan for the evacuation , relocation and essential support of the population which relies on the central power plants for residential heating

OFDA should provide technical assistance to the Government of Mongolia pertinent agency planners at the request of the GOM to follow the planning process through to its completion by mid-December 1994 and to ensure thoroughness of an evacuation plan

OFDA should fund the development and initiation of a regional training program in disaster management to include ten senior officers from the Mongolian Civil Defense and counterparts from the five Central Asian republics of the former Soviet Union, to be conducted in Russian, in the first half of 1995, probably in Almaty

Disaster preparedness and response assistance to the Government of Mongolia should be made available on a long-term basis by USAID or until other donors are identified The vulnerable situation of the central heating system is likely to continue for several years, at a minimum Preparedness and response assistance should be made available to the Government of Mongolia on a long-term basis

A winter heating system failure should be defined as a specific disaster type for the urban areas of Mongolia for the next several years Due to the relative importance of this disaster type it should be made a high priority relative to earthquakes, winter storms, riverine flooding and drought

USAID should consider long-term support for infrastructure protection and disaster prevention measures for the city of Ulaanbaatar and for the preparedness capability of the Civil Defense The Government of Mongolia should seriously consider the immediate implementation of the following mitigation actions

---

[25] (The following recommendations are excerpted from Brennan *et al* 1994, *OFDA Mission report Findings and recommendations for the 1994-1995 Heating Season Crisis in Mongolia Preparedness and Response Strategies* Manila USAID/OFDA)

1) Schedule rolling blackouts to all residential district of the city This load shedding strategy should be put into effect now, given the projected shortfall in coal production

2) Lower the temperature of heating system water temperature from the first day of the heating season

3) Delay the beginning of the heating season by two to four weeks if possible, especially if early winter weather is relatively mild

4) Do not provide steam to hot air systems in public buildings at start of the heating season

5) Institute a mass information, awareness, and education campaign for the general public regarding the energy crisis and conservation and preparedness strategies

6) Reallocate scarce resources to the energy sector- specifically for the purchase of mazut for augmentation of the lower quality coal produced by the Shivee Ovo mine

7) Consider alternate fuels such as firewood imported from Bulganaimag, and where possible increase production and availability of such fuels to the small buyers in the *ger* communities of Ulaanbaatar

8) Raise the price of coal to promote conservation of the fuel as well ass to give incentives to better production by mining companies

9) Quickly Increase electricity purchases from Russia to reduce coal consumption

10) Review evacuation procedures Coordinate and make these procedures known to Civil Defense reservist, building supervisors, and all staff involved with possible emergency evacuation operations

OFDA should provide technical assistance in non-capital intensive industrial energy conservation strategies to the operating concerns in light and heavy industry This assistance should be linked with other programs to reduce inefficiency in the heat distribution system

It is further suggested that 1) a worldwide convention on Natural Disaster reduction be held, 2) a regional strategy to combat natural disaster be prepared, 3) regional training centers dealing with natural disaster education issues or problems be established, 4) the roles of UN organizations and programs such as WMO, UNDP, UNEP, etc in building national capacity to reduce natural disasters be increased, and 5) the biggest banks, funds and foundations assist disaster-prone developing and least developed countries to deal with natural disasters [26]

[26] (Excerpted from Government of Mongolia, December 1993 *IDNDR Mid-Term Review and the 1994 World Conference on Natural Disaster Reduction Detailed National Report Mongolia*)

C.4 Disaster Management Strengthening Strategies for Thailand[27]

Debate and discussion (during the workshop) focused on the recommendations of the case study report *Strengthening Disaster Management Strategies in Thailand* Comment from panelist and responses from the audience emphasized the general support for those recommendations and identified a need for a clear national policy for disaster management, need for improved planning and coordination, the need for more resources, especially finances, and the need for greater awareness Given the reluctance of Thais to speak up in the presence of their superiors, the level of comment from the floor, even though limited, was surprising and very encouraging

All recommendations and proposed initiatives elicited during the strategic planning session of the workshop are summarized

1) Review all laws and plans related to disaster management and revise them, as needed That revision should focus on integration of activities where duplication occurs

2) A single master disaster management plan should be considered, one that is not a secret plan Separate support plans (sectoral, contingency, regional and provincial) should be developed or revised in conformance with the master plan

3) Plans must be exercised and practiced and funds to do so must be allocated

4) A single disaster management committee, chaired by the Prime Minister, should be created, by combining committees or putting them under the central committee

5) Include the military, as well as all concerned agencies, in the central disaster management committee and in the planning process

6) Create hazard-specific institutes (i e building safety, hazardous materials) that advise on issues of disaster management, law revision, codification, mitigation and prevention

7) Provide improved public participation (private sector, NGOs, public at large) in disaster management This should include public access to rules and regulations and the public's early participation in their development

8) There should be dedicated and adequate funds for disaster response and the necessary rules to permit those fund's expedient use

9) Improve the communications and warning plans of the Kingdom and provide adequate resources to realize effective operation of them

10) Pool equipment used in response activities

---

[27] (Excerpted from *UNDP/DHA Disaster Management Training Program Country Workshop for Thailand 20-22 June 1994* No 20 Strategic Planning exercise, pg 7)

11) Risk assessment (including hazard and vulnerability assessment) should be carried out on a regional and provincial basis

12) Establish a dedicated information network, including Geographical Information System, Managed Information System, Early Warning System, that promotes exchange and easy availability of information

13) A distinct section on disaster management will be included in the Eighth National Economic and Social Development Plan (1997-2002) by NESDB

C 5 Disaster Management Strengthening Strategies for Vietnam[28]

Institutional Recommendations

1) Improve and/or simplify organizational structures
2) Increase opportunities for sharing regional experiences
3) Strengthen the powers of the central government relative to the local government units
4) Facilitate communications between different organizations
5) Enhance communications between the provinces and Hanoi
6) Bring office facilities up to adequate standard

Forecasting and Warning System Recommendations

1) Improve the warning systems so that a warning is possible 24 hours before the disaster
2) Increase the density of weather stations along the coast
3) Consider setting up siren warning systems
4) Consider funding of typhoon warning and forecasting systems at a more local level
5) Improve system of issuing warnings, particular for when typhoon are near the coast
6) Improve co-operation with international meteorological facilities

Data Recommendations

1) Increase the density and quality of gauging stations
2) Start monitoring groundwater fluctuations

Communication Recommendations

1) Combine emergency and communication systems
2) Provide radio communications in the field
3) Consider radio for ocean-going vessels
4) Set up improved communications systems between different administrative levels
5) Install a back-up communications system
6) Increase the number of telephone lines

---

[28] Recommendations of the Workshop on Flood Mitigation, Emergency Preparedness and Flood-Disaster Management Hanoi June 1992 (From DHA, 1994, *Strategy and Action Plan for Mitigating Water Disasters in Viet Nam*)

Emergency Preparedness Recommendations

1) Improve data collection and warning systems
2) Prepare evacuation plans
3) Improve evacuation facilities
4) Improve awareness of local hazards
5) Co-ordinate self-help programs
6) Institute a continuing program of education, promulgation of awareness of local hazards, and strategies for disaster-mitigation
7) Maintain and strengthen the systems of involvement at the state, provincial, district and local levels
8) Train leaders
9) Prepare hazard maps
10) Prepare alternatives to evacuation
11) Provide computers to Provincial Committees to set up databases on dike monitoring and repair
12) Test and review the emergency preparedness plans

Disaster Mitigation Recommendations

1) Introduce modern techniques of flood modelling and protection planning
2) Improve the understanding of the physical setting of the Vietnamese deltas and their watersheds
3) Evaluate the causes of flooding
4) Evaluate existing flood-mitigation infrastructure including their designed levels of protection
5) Determine design floods appropriate for different areas and for different types of development
6) Evaluate the advantages and disadvantages of controlled flooding and flood-mitigation
7) Consider the concerns and needs of the people affected by floods, e g soil fertility, fishery resources and groundwater recharge

C.6 Recommendations for Strengthening of Disaster Management Independent Regional IDNDR Report for South and Southeast Asia[29]

Recommendations for Scientific and Technical Applications

Scientific and technical applications of the Decade have to be directed more towards the interests and needs of the disaster prone developing countries Knowledge transfer needs to be facilitated in their interests with more developed role for broader, multi-sectoral professional community Scientific and technical knowledge needs to be translated and accessible, if it is to be applied by disaster management professionals drawn from a variety of disciplines who are most immediately responsible for risk reduction at national and local levels

1) Priority attention should be given to conducting hazard risk assessments and the development of related zonation mapping in all countries, as a sound basis to any comprehensive program of risk reduction

2) Applied research in Asian countries should focus on the more disaster-prone countries in the region, with particular attention given to the interface between natural hazards and the identification of technological or environmental risks in rapidly industrializing areas or those with large population concentrations

3) The establishment and institutionalization of effective warning and public response systems, supported by an effective program of sustained public awareness should be accorded a high priority of commitment in primary hazard prone areas

4) While the development of new technical knowledge should continue in professional circles outside the Decade's immediate framework, IDNDR programs should focus primarily on the dissemination and application of existing knowledge, such as regionally appropriate hazard-resistant construction practices, etc

5) Case studies should be conducted and demonstration projects should be implemented, within the region by professionals of the region,a primary means of documenting and disseminating appropriate and productive measures of risk reduction

6) There is an urgent need for the identification, consolidation, dissemination and access to relevant knowledge and information that can contribute to risk reduction activity within the region The requirement is of sufficient strategic importance that a consciously planned and directed program should be devised to achieve its realization

7) Specific measures should be adopted to engage a wider range of professional disciplines in the programs and activities of the Decade Particular importance must be accorded to

---

[29] (From *Critical Issues for the Realization of IDNDR Objectives in South and South-East Asia* Bangkok ADPC (March 1994)

planners, development economists, social scientists, and other similar professions engaged in the human or social factors implicit in technical applications A distinct committee or advisory group to work in conjunction with the scientific and technical communities may be advisable to address the human vulnerability issues in the IDNDR agenda

8) Greater attention should be given to the translation of scientific and technical knowledge so that it is comprehensible and physically accessible to disaster management professionals and members of the public most immediately involved with deciding or implementing risk reduction measures, in either official or local community capacities

9) Practical steps should be taken to promote more active multi-sectoral networking opportunities at national, regional, and international levels with a primary emphasis being derived from the needs of developing affected countries Such countries may be encouraged and supported to organize and conduct more of the designated Decade functions, study tours, and opportunities for practical exchange of information

Recommendations for Information Requirements and Strategies

Information needs to be recognized as a strategic element for the achievement of IDNDR goals There is an urgent need to address information collection, analysis, and dissemination for the Decade in a systematic and directed program linking local, national, regional, and global requirements People must be recognized as being central to any information systems, which should exist ultimately to enable people to make decisions that result in reducing their own exposure to risk

1) IDNDR must provide direction to national decision-makers and concerned international organizations for their development and utilization of a viable information system which is able to communicate and maintain a focus on priority actions of the Decade International action is necessary to encourage increased access to disaster-related information for the common good of participating countries

2) IDNDR should adopt a clear and explicit purpose for its information programs focused on desired action to motivate decision-makers to engage disaster risk reduction measures and to enable those people most immediately affected by disaster risks to apply necessary measures for their own protection

3) Data collection and utilization requires improvement While considerable data already exists, it is disaggregated and diffuse There is also more relevant data yet to be collected Capacities need to be strengthened at all levels to address data gaps and to make relevant information readily accessible in the form and at the time required

4) There is a need for national, regional and international data and information centers to be brought together with the explicit mandate to engage in the exchange and consolidation of comprehensive data collection systems These facilities should make use of appropriate technological tools for the collection, analysis, storage and dissemination of information

5) Governments should consider necessary institutional changes for the establishment of decentralized multi-sectoral information networks to enable integration and access across sectoral line agencies

6) Bilateral, multilateral, and UN agencies should foster capacity building in acquiring and building in-country expertise in utilizing compatible information technologies cost effectively To avoid duplication, access to existing networks of UNEP-GRID in the region is recommended at nation, sub-regional, and regional levels

7) Individual national action plans for the development and implementation of information capabilities for IDNDR purposes should be encouraged These action plans should place priority attention on the identification of key organizational affiliations to extend the reach and access of the national information system

8) The basic needs and uses of information by people associated with the decade need to be identified and built into any information networks People must become involved in the information process for it to have relevance in application and to enable their own commitment

9) Information must be translated and become accessible to people located in vulnerable communities, with the primary intention to inform them of prevailing hazards and risks so that they may then strive to develop their own capabilities to reduce local risks

10) Important means of information transmission between the generators of data, official policy authorities and the public need to be identified and inculcated in the goals of the Decade Dynamic and innovative individuals ("torch bearers"), affiliated organizations, media representatives, specialized international agencies, and the private sector are all potential collaborators that should be explicitly cultivated and engaged

11) Information must be produced and made usable for decision-makers at all levels Present shortages of financial resources and trained manpower, or the lack of awareness as to the value and availability of information critical to decision-making should be addressed Special emphasis needs to be given to training and the transformation of existing information into more useful forms and targeting it at different target groups

Resource and Availability Allocation

There is need for greater commitment and allocations of resources to accomplish IDNDR goals and this must proceed with concerted action primarily through more explicit strategic initiatives of disaster-prone countries Many of the necessary resources may be found in more integration of disaster measures with development program finance and from the affected communities' direct engagement in risk reduction activities Human resource development is a strategic requirement which must be pursued in a concerted and directed manner and by employing a variety of awareness, information, demonstration, and exchange mechanisms at all policy and operational levels of the society and through-out the region

1) The goals of IDNDR should be expanded to include "To provide the financial, institutional, and human resources needed to achieve the physical goals of the Decade and to sustain the thereafter "

2) There is an urgent need for individual disaster prone countries to identify strategies and mechanisms for directing the flow of resources and ensuring their application for a specified agenda of a national disaster reduction program Countries should be encouraged to identify resource expenditures and requirements in the context of explicit action plans of priority activities

3) Countries should be encouraged to identify, value and mobilize existing resources available to communities at local levels for disaster reduction endeavors, and to create the means for developing them where they do not exist in sufficient terms Particular attention may be given to the utility or development of local infrastructure for this purpose

4) The development and commitment of a country's resources for disaster awareness and reduction must encompass a wide range of collaborators in addition to government authorities, including dynamic and innovative "torch bearers", multi-sectoral and professional bodies, NGOs, the commercial sector, and local formal and informal bodies

5) Well-conceived human resource development programs should be designed and implemented in all disaster-prone countries with priority attention directed to sensitizing policy and decision-makers at all levels Skills should be developed in accordance with the responsibilities and functions outlined in national action plans

6) Case studies, demonstration activities, and professional exchanges or cooperation undertaken by professionals of developing disaster affected countries in a multi-sectoral context are effective in contributing to human resource development and information exchange Their use should be supported and opportunities for exposure should be expanded

7) Governments should specify explicit programmatic relationships between development financing and disaster risk reduction endeavors with suggested fiscal mechanisms to

earmark expenditure to pursue Decade goals International development and financing organizations should similarly encourage national policy commitment and financial allocation through their loan and grant mechanisms Disaster reduction in development programming may be made an explicit funding category in aid consortia or international pledging fora

Recommendations for Affected Countries & Organizations

1) There is a need for countries to integrate a disaster reduction agenda and related activities into their national development plan processes, or in the presentation of an explicit "National Plan of Action"

2) Achievement goals of financial and other forms of resource commitment should be applied within countries and by individual organizations committed to national development objectives

3) Countries require a visible, and functional, institutional focal point to direct and coordinate a coherent national program of activities designed to address the goals of the Decade

4) National authorities must establish means to identify and then to promote access to the wide range of professional abilities, information and resources available within the country, and within a regional proximity

5) Countries may be encouraged to acknowledge the "basic institutional requirements" which pertain to achieving an acknowledged standard of disaster awareness and risk reduction

6) Countries should be encouraged to undertake an annual national self-appraisal, applied on their own terms, of their prevailing commitment to incorporating disaster awareness and reduction measures in their national development program

Recommendations for IDNDR Authorities

1) There is a need for IDNDR program emphasis to be more explicitly directed to the perceived needs of the primarily affected developing countries, with greater support provided to their initiatives and in the development of their institutional capacities

2) The IDNDR Scientific and Technical Committee should be revised in purpose and altered in composition to become a more professionally and socially representative, multi-sectoral Advisory Council for the Decade

3) There is an urgent need for the United Nations and its specialized agencies concerned with disaster awareness and risk reduction, to clarify their respective roles, interests, relationships, and strategies with respect to the IDNDR

4) IDNDR needs to identify and implement more effective public information and education efforts

5) To mobilize commitment at all levels, IDNDR should encourage and provide means to support the preparation of implementation plans which structure a series of actions in affected areas, by those people who would be expected to be involved in their implementation

6) If the IDNDR is to succeed, it must have the direction and professional competency accorded by an adequately funded and professionally staffed secretariat of sufficient size to address the needs of a global initiative over ten years

Recommendations for Donors & Other International Contributors

1) The international development assistance community and individual national bilateral assistance programs share a responsibility for a renewed commitment to support disaster awareness and reduction measures in affected developing countries

2) Periodic donor pledging conferences sponsored by aid consortia should be used as venue for the presentation of explicit disaster reduction plans of action to be incorporated in national development programs

3) International and regional development lending institutions can be called upon to provide more leadership, encouragement and capital to realize risk reduction measures in the national development process

4) More active promotion can be done to identify and then engage various private sector sponsorship programs or activities to further the goals of the Decade

5) If a greater degree of commitment is anticipated from local communities and the public, a more conscientious effort is necessary to include their participation in the programs of the Decade